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POPULATION CHANGES IN ENGLAND AND WALES: FAMILIES AND DWELLINGS: 1921-1931

By E. C. RHODES

1. THE Reports of the Registrar-General on the Census of England and Wales in 1931, issued to date, contain material of great interest to students of population problems. A table in the preliminary Report which shows the inter-censal changes, 1921-31, stresses the movement which has taken place in this interval from one part of the country to another. Certain figures

MIGRATION AND UNEMPLOYMENT

Region	Population (1931) (in Thousands)	1921-31. Gain (+) or Loss (-) due to Migration (Percentage of 1921 Population)	Average Percentage Unemployment amongst Insured Workers
South-East	13,478	+ 5.0	5.8
Northern 1	2,243	- 9.3	19.8
" 2	1,281	- 2.9	13.4
" 3	3,437	- 1.4	13.6
" 4	6,127	- 2.6	15.6
Midland 1	4,528	- 1.9	11.4
" 2	2,373	0.0	9.2
East	1,822	- 2.3	9.2
South-West	2,069	+ 1.6	7.7
Wales 1	1,898	- 12.3	23.9
" 2	696	- 2.5	13.5
	39,952	- 0.5	—

The regions are composed of the following groupings of counties:

South-East: Bedford, Berks, Bucks, Essex, Hants, Herts, Kent, London, Middlesex, Oxford, Surrey, Sussex.

Northern 1: Durham, Northumberland.

 " 2: Cumberland, Westmorland, Yorkshire (E.R. and N.R.).

 " 3: Yorkshire (W.R.) and York City.

 " 4: Cheshire, Lancashire.

Midland 1: Gloucester, Hereford, Salop, Stafford, Warwick, Worcester.

 " 2: Derby, Leicester, Northants, Notts.

East ...: Cambridge, Huntingdon, Lincoln, Norfolk, Rutland, Suffolk.

South-West: Cornwall, Devon, Dorset, Somerset, Wilts.

Wales 1: Brecknock, Carmarthen, Glamorgan, Monmouth.

 " 2: Rest of Wales.

abstracted from this table may be related to other figures published by the Ministry of Labour, concerning the percentages of Unemployment amongst the Insured Workers in different areas.

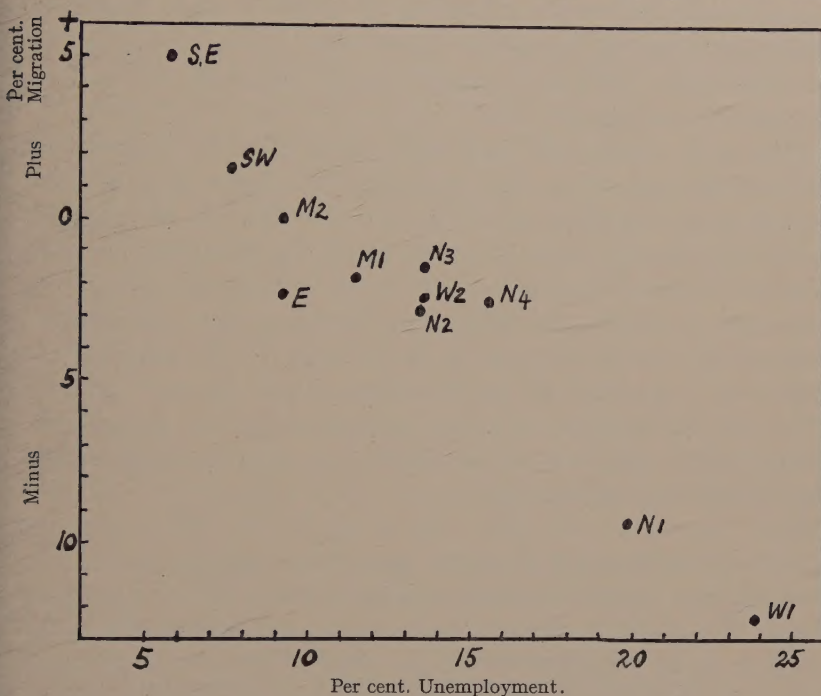
The first column gives the population figures for the areas in 1931. These are, in some cases, slightly different from those in the Preliminary Report (issued in 1931), as revisions have subsequently been made. The second column gives the estimated proportional change in population due to migration alone. This has been obtained by the Registrar-General, after allowing for natural increase due to births and deaths, and after making allowance for the fact that the 1921 census figures were somewhat disturbed by holiday movement of a temporary character, due to the census in that year being taken in June instead of in April, as originally planned. Thus the official estimate of the gain in population in the South-Eastern area due to migration alone is 5 per cent. of the 1921 population in that area. As the net migration for the whole country only amounted to about one-half of 1 per cent. of the total population the figures in the second column do reflect the movement which has been taking place from one part of the country to another in the ten-year interval. The most important features of this set of figures are the high percentage losses from the Durham and Northumberland and South Wales industrial areas, and the gain to the South-Eastern (Home Counties) area.

In the decade 1921-31, with much depression in the coal and heavy industries, the incidence of Unemployment has been very great in certain areas in contrast to others. The figures in the third column of the table, indicating the differences between the proportions of Insured Workers unemployed in different areas, have been obtained by averaging the experience of the years 1927-30 inclusive, from the Local Unemployment Percentages, issued monthly by the Ministry of Labour since 1927. The contrast between such regions as Northern 1 (Durham and Northumberland) and Wales 1 (South Wales) and the South-East in this respect is as striking as that in respect of migration. The relation between the two sets of figures in columns 2 and 3 may be indicated graphically.

Changes in the industrial character of the country have undoubtedly had effect on the geographical distribution of population.

2. It is interesting to consider, in the light of these com-

paratively large movements of population in the ten-year interval, the changes which have taken place in housing accommodation in different areas. In this period much building, demolition, and reconstruction have taken place. The Registrar-General has recently issued many detailed tables relating to private families and dwellings, in County Volumes (Part I). From these are extracted the figures subsequently quoted in the



following pages. It is well to include here the exact definitions of what are meant in these tables by "private families" and "structurally separate dwellings."

"Any person or group of persons included in a separate return as being in separate occupation of any premises or part of premises is treated as a separate family for census purposes, lodgers being so treated only when returned as boarding separately and not otherwise. Private families comprise all such families with the exception of those enumerated in (i) institutions or (ii) business establishments or boarding-houses in which the number of resident trade assistants or resident boarders exceeds the number of members of the employer's or householder's family (including private domestic servants."

"A structurally separate dwelling has been defined for the census as any room or set of rooms, intended or used for habitation, having separate access either to the street or to a common landing or staircase. Thus each flat in a block of flats is a separate unit; a private house which has not been structurally subdivided is similarly a single unit whether occupied by one family or by several families. But where a private house has been subdivided into maisonettes or portions, each having its front door opening on to the street or on to a common landing or staircase to which visitors have access, then each such portion is treated as a separate unit."

The total number of "dwellings" recorded in the 1931 census in England and Wales was 9,399,535. This figure may be compared with 7,975,732 in 1921, and shows an increase of 1,423,803, or 17·9 per cent. It must be remembered that the change between the two dates is accounted for by new erections, changes in structure of existing dwellings, and by demolitions. Information respecting new houses built is issued from time to time by the Ministry of Health. The total number of new "houses" built in the ten-year interval is in the neighbourhood of 1½ millions. Some details are given in the table below, from figures published by the Ministry of Health.

NUMBER OF HOUSES BUILT IN ENGLAND AND WALES

Year ending 30th September	Number of Houses
1922-23	78,738
1923-24	109,491
1924-25	159,026
1925-26	197,584
1926-27	273,229
1927-28	166,415
1928-29	203,443
1929-30	161,699
1930-31	194,944
	<u>1,544,569</u>

The total number of private families recorded in the 1931 census was 10,233,139, an increase of 1,496,979 on the figure for 1921, 8,736,160, or 17·1 per cent. In 1921 there were 8,736,160 families to 7,975,732 dwellings, an average of 1·10 families per

dwelling. In 1931 there were 10,233,139 families to 9,399,535 dwellings, an average of 1.09 families per dwelling. The proportionate increase in families from 1921 to 1931 was 17.1 per cent., that of dwellings was 17.9 per cent. The rate of increase in the number of families was 0.96 of that of dwellings.

There were, in 1921, many dwellings which housed more than one family, and this was also the case in 1931, though to a somewhat lesser degree, the average number of families per dwelling being nearer unity in 1931 than in 1921 (1.09 as against 1.10). Here we must interpolate two reminders which bear on the interpretation of these figures. In the first place, the figure for dwellings includes those vacant at both dates, these being, it is true, only a small proportion each year. In the second place, the 1921 figure for families is somewhat distorted owing to the fact that the census in that year was taken at the beginning of the holiday period. Thus certain family units, which would perhaps have been recorded as such if the census had been taken in April, are not so recorded if, at the time of the census, the families were on holiday in an hotel. On the other hand, if a family was staying in "rooms" and boarding separately from the landlady's family, it would still be recorded as a separate unit. But if two sisters (say) of a private family were on holiday in 1921 at the time of the census while the rest of the family remained at home, and formed a new family unit by boarding separately in the house in which they were staying, the number of families would be increased. It is quite possible that these opposing tendencies to raise and lower the 1921 figure of total private families may reasonably cancel one another, and the recorded figure might be reckoned as approximately accurate.

It is a debatable question as to how far families come into existence because there are dwellings available, or how far dwellings are constructed because there are families waiting to occupy them. Probably the one is antecedent to the other in different localities and on different occasions. We can either say that the proportionate increase in families has not kept pace with that in dwellings, or that the proportionate increase in dwellings has outrun that in families. On the other hand, if we think of an ideal state in which there is one family per dwelling, we may say that there was, in 1931, a shortage of about 800,000 dwellings, since there were at that time 10,233,000 families and only 9,400,000 dwellings.

3. The more detailed table at the end shows the changes in respect of families and dwellings which have taken place in each county in the decade under consideration. The proportionate increases in families and dwellings are shown for each county, and in many cases are more or less the same. The largest increases recorded are those for the county of Middlesex, where the number of families increased by 44·5 per cent. and the number of dwellings by 47·4 per cent. The smallest changes are those in some of the Welsh counties, Cardigan, for instance, having an increase of 1·0 per cent. in the number of families, and 2·7 per cent. in the number of dwellings.

Attention is again drawn to the distortion introduced into the 1921 "family" figures, owing to the change of date of the census in that year. The temporary migration of families from one county to another would tend to raise the number of families in "rural" and "seaside" counties, and depress it in "industrial" counties. Thus, in the case of Sussex, the smaller proportionate increase in families compared with dwellings (22·2 as against 28·8) may be partly due to the fact that the number of families in 1921 (163,800) was magnified by holiday makers. On the other hand the number of families in Yorkshire (W.R.), 768,200 in 1921, is probably less than would be expected, and the proportionate increase between 1921 and 1931 is therefore probably too large. It may be that a better guide to the relative change in the number of families in the decade is supplied by the relative change in the number of dwellings.

The large relative changes in the Home Counties—Middlesex, Herts, Essex, Surrey—are especially to be noted, as they are indicative of the growth of Outer London, and these may be contrasted with the figures in the industrial areas of Durham, Northumberland, Lancashire, Yorkshire (W.R.), and with those in the Eastern agricultural area (Huntingdon, Lincoln, Norfolk, Suffolk).

The table below, showing the percentage increases for the regions already considered, is of interest, as it also includes the estimates of holiday movement in 1921, made by the Registrar-General.

If the result of the holiday movement in 1921 is that the number of families in an area is recorded as 101,000 (say) instead of 100,000 (+ 1 per cent.), and if the number of families in 1931 is 120,000 (say), then the percentage increase would be calculated

PERCENTAGE INCREASES AND ESTIMATES OF HOLIDAY MOVEMENTS IN 1921

Region	Percentage Increase on 1921		Ratio of Percentage Increase in Families to that in Dwellings	Population in 1921 (Thousands)		Recorded greater (+) of less (-) than Estimate (Thousands)	Holiday Movement as Percentage of Estimated Population		
	Families	Dwellings		Estimate	Recorded				
South-East	..	..	21.0	23.8	0.88	12,190	12,276	+ 86	+ 0.7
Northern I	..	..	15.3	12.1	1.26	2,238	2,225	- 13	- 0.6
" 2	..	..	13.5	13.1	1.03	1,230	1,256	+ 26	+ 2.1
" 3	..	..	16.8	16.6	1.01	3,305	3,265	- 40	- 1.2
" 4	..	..	15.3	15.1	1.01	6,003	5,953	- 50	- 0.8
Midland I	..	..	18.1	18.2	0.99	4,307	4,259	- 38	- 0.9
" 2	..	..	19.1	19.6	0.97	2,221	2,200	- 21	- 0.9
East ..	..	..	11.7	12.5	0.94	1,763	1,780	+ 20	+ 1.1
South-West	..	..	12.3	14.2	0.87	1,970	2,013	+ 43	+ 2.2
Wales I	..	..	11.9	13.9	0.86	1,967	1,940	- 27	- 1.4
" 2	..	..	6.7	9.8	0.68	691	717	+ 26	+ 3.8

as $\frac{19}{101} \times 100$ instead of $\frac{20}{100} \times 100$, as it should be. Thus, if we add the 1 per cent. error in the number of families in 1921 to the calculated percentage increase, we shall get approximately the correct figure, unaffected by this distortion. It is probable that the distortion in the number of families in 1921 due to holiday movement is relatively not as great as that in the total population (number of persons). We might take the figures in the last column of the above table as a guide to the holiday movement of families, and correct the figures in the first column, so that the real comparison between the percentage increase in families and that of dwellings would emerge. The sizes of the figures in the last column indicate that these corrections would be small, in most cases no more than 1 per cent., and at most (say) 2 or 3 per cent. in the case of Wales 2. The interest for us is not so much to discover what these corrections should be as to point out that if such corrections were made the effect would be to make the figures in column 3 (showing the ratios of the proportionate increases in families to those of dwellings) approach more closely to the average for the whole country (0.96), except in the case of Northern 2 and Wales 1. For we should have:

South-East	0.88 +	Midland 1	0.99 -	Wales 1	0.86 -
		„ 2	0.97 -	„ 2	0.68 +
Northern 1	1.26 -				
„ 2	1.03 +	East	0.94 +		
„ 3	1.01 -				
„ 4	1.01 -	South-West	0.87 +		

4. We can fruitfully compare the proportionate increases in families with the proportionate increases in population (number of persons), area by area. In the table below the plus and minus signs indicate whether the corresponding figures for families should be raised or lowered to compensate for the 1921 holiday distortion.

This table is interesting because, besides showing the large relative rise in families accompanying the large relative rise in population, it stresses the fact that there is a relative increase in families even where, as a result of migration, there is little or no rise in population, or where there is a decrease. This is of course due to the fact that in the decade under consideration,

the number of marriages has been maintained at a high level, whereas the natural increase in the population (excess of births over deaths) has been on the whole declining.

Region	Percentage Increases	
	In Families	In Population
South-East	21·0 +	10·5
Northern 1	15·3 —	0·2
2	13·5 +	4·1
„ 3	16·8 —	4·0
„ 4	15·3 —	2·0
Midland 1	18·1 —	5·1
„ 2	19·1 —	6·8
East	11·7 +	3·3
South-West	12·3 +	5·0
Wales 1	11·9 —	— 3·6 (decrease)
„ 2	6·7 +	0·7

The fact that new families are being formed (by marriages), even in districts where the population is stationary or declining, is reflected in the figures showing the average number of persons

Year	Number of Marriages	Excess of Births over Deaths
1921	320,852	390,185
1922	299,524	293,344
1923	292,408	313,346
1924	296,416	256,698
1925	295,689	237,741
1926	279,860	240,759
1927	308,370	169,563
1928	303,228	199,878
1929	313,316	111,181
1930	315,109	193,384

per private family. These show reductions in all counties from 1921 to 1931. The following table gives a summary of these figures for the larger regions. These figures are obtained by

FAMILIES AND DWELLINGS BY COUNTIES

County	Families (Thousands)		Dwellings (Thousands)		Percentage Increase		Ratio of Percentage Increase in Families to that of Dwellings	Average Number of Persons per Family	
	1921	1931	1921	1931	Families	Dwellings		1921	1931
Bedford ..	50.0	58.7	49.8	58.6	17.3	17.7	0.98	3.99	3.60
Berks ..	68.5	80.0	67.0	79.1	16.7	18.0	0.93	4.00	3.65
Bucks ..	56.3	71.0	56.5	72.3	26.1	28.0	0.93	4.00	3.63
Essex ..	338.8	451.4	293.7	401.8	33.2	36.8	0.90	4.16	3.74
Hants ..	227.6	275.1	208.1	258.9	20.9	24.4	0.86	3.99	3.58
Herts ..	77.3	102.9	76.2	102.3	33.1	34.4	0.96	4.05	3.67
Kent ..	252.9	310.1	238.3	297.8	22.6	25.0	0.90	4.09	3.64
London ..	1,120.9	1,190.0	720.0	748.9	6.2	4.0	1.54	3.79	3.46
Middlesex ..	298.4	431.4	243.7	359.1	44.5	47.4	0.94	4.05	3.66
Oxford ..	45.9	52.8	46.5	52.9	15.0	13.8	1.08	3.90	3.63
Surrey ..	212.5	300.3	198.2	281.8	41.3	42.1	0.98	4.07	3.67
Sussex ..	163.8	200.3	147.2	189.5	22.2	28.8	0.77	3.88	3.49
Durham ..	313.8	359.8	291.8	329.1	14.7	12.8	1.15	4.61	4.04
Northumberland ..	160.3	186.5	157.2	174.0	16.4	10.7	1.53	4.45	3.91
Cumberland ..	59.6	64.4	59.7	65.4	8.1	9.5	0.86	4.40	3.94
Westmorland ..	14.6	16.2	15.2	16.8	10.6	10.4	1.02	4.11	3.74
Yorks (E. & N. R.) ..	201.9	232.8	201.7	230.7	15.3	14.4	1.06	4.26	3.84
Yorks (W.R.) and York ..	768.2	897.6	768.6	896.1	16.8	16.6	1.02	4.14	3.70
Cheshire ..	236.4	279.7	229.7	274.9	18.3	19.7	0.93	4.20	3.75
Lancashire ..	1,108.7	1,270.9	1,064.5	1,214.9	14.6	14.1	1.04	4.27	3.78
Gloucester ..	183.1	206.7	165.6	188.0	12.9	13.5	0.95	3.97	3.63
Hereford ..	26.9	28.4	27.5	29.0	5.6	5.6	1.00	4.05	3.73
Salop ..	55.9	60.9	56.8	61.5	9.0	8.3	1.08	4.18	3.83
Stafford ..	286.0	340.0	278.9	326.6	18.9	17.1	1.11	4.62	4.10
Warwick ..	312.6	385.9	299.6	375.1	23.4	25.2	0.93	4.31	3.82
Worcester ..	91.0	106.7	90.6	106.4	17.2	17.5	0.98	4.18	3.78

Derby ..	160.4	187.8	156.2	184.5	17.1	18.1	0.94	4.35	3.91
Leicester ..	116.5	142.0	114.4	139.9	21.9	22.2	0.98	4.14	3.70
Northants ..	86.0	97.7	84.2	96.0	13.5	14.1	0.96	3.95	3.58
Notts ..	149.3	182.5	148.4	181.6	22.3	22.3	1.00	4.21	3.79
Cambridge..	50.3	58.3	50.7	58.0	15.8	14.4	1.09	3.86	3.51
Huntingdon ..	13.8	15.3	14.3	15.9	11.1	11.0	1.01	3.89	3.59
Lincoln and Rutland	145.9	163.8	145.9	165.5	12.2	13.4	0.91	4.07	3.73
Norfolk ..	121.8	134.5	124.6	138.3	10.4	11.0	0.95	3.96	3.59
Suffolk ..	95.5	105.6	96.1	107.9	10.6	12.3	0.86	3.99	3.62
Cornwall ..	79.8	85.6	81.3	88.9	7.3	9.3	0.78	3.85	3.52
Devon ..	172.0	193.5	147.6	170.8	12.5	15.8	0.79	3.78	3.49
Dorset ..	52.8	62.1	51.8	62.0	17.6	19.6	0.90	3.94	3.55
Somerset ..	112.9	127.4	110.2	125.5	12.8	13.9	0.92	3.91	3.53
Wilts ..	69.2	78.2	69.3	78.5	13.1	13.2	0.99	3.96	3.62
Brecknock..	13.4	14.1	13.4	13.9	5.5	4.2	1.30	4.40	3.92
Carmarthen ..	39.1	43.8	37.6	42.1	12.0	12.0	1.00	4.41	4.01
Glamorgan ..	263.9	297.6	227.1	259.8	12.8	14.4	0.89	4.62	4.01
Monmouth ..	96.3	106.3	83.5	95.9	10.4	14.9	0.69	4.56	3.99
Anglesey ..	12.8	13.2	13.5	14.1	2.6	4.7	0.56	3.91	3.60
Carnarvon ..	30.9	31.5	30.6	32.8	2.0	7.4	0.27	3.83	3.56
Denbigh ..	34.6	38.6	33.8	39.2	11.5	16.0	0.72	4.31	3.88
Flint ..	23.0	27.7	22.8	28.5	20.3	24.6	0.82	4.42	3.90
Cardigan ..	14.9	15.1	15.7	16.1	1.0	2.7	0.36	3.84	3.48
Pembroke ..	21.1	21.7	21.0	22.2	2.6	5.4	0.47	4.20	3.82
Merioneth ..	10.8	11.1	11.6	12.0	3.5	3.6	0.99	3.95	3.65
Montgomery ..	12.1	12.2	12.5	12.8	1.5	1.9	0.76	4.18	3.85
Radnor ..	4.9	5.2	5.1	5.3	5.0	5.1	1.00	4.25	3.94

dividing the population in private families by the number of private families.

Region				Average Number of Persons per Private Family	
				1921	1931
South-East	..	..		3·95	3·58
Northern 1	..	..		4·56	4·00
„ 2	..	..		4·29	3·86
„ 3	..	..		4·14	3·70
„ 4	..	..		4·26	3·77
Midland 1	..	..		4·31	3·86
„ 2	..	..		4·19	3·77
East	..	..	..	3·99	3·63
South-West	..	..		3·86	3·53
Wales 1	..	..		4·58	4·00
„ 2	..	..		4·11	3·74

These figures are also affected by the migration during the decade, the largest changes being those of regions Northern 1 and Wales 1, which have lost relatively a great part of their population by migration.

THE HISTORY OF LONGEVITY IN THE UNITED STATES*

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MARKED improvement in mortality has occurred within past decades in all civilized countries. In the United States the matter is of particularly timely interest, because the publication of the data of the census of 1930 has made available the necessary information for the computation of recent life tables. Such tables have been prepared in the Statistical Bureau of the Metropolitan Life Insurance Company, and will in due course appear as part of a general treatise on this subject. In the meantime the material at hand makes possible a brief summary of the trend of longevity in the United States in past decades.

Accurate data on mortality for any considerable area of the United States are unfortunately obtainable only for a relatively recent period. For information regarding the eighteenth and the first half of the nineteenth century we are forced to rely on fragmentary data of doubtful reliability. Among the earliest attempts to present a life table for an American community is a paper communicated by William Burton to the American Philosophical Society in March 1791. From his very sketchy data we may perhaps infer that the expectation of life in Philadelphia in the last decade of the eighteenth century was about 25 years. And we may surmise that for the country as a whole at this time the expectation of life at birth must have been in the neighbourhood of 30 years.

During the early part of the nineteenth century a number of more completely worked-out life tables based on American data were published by various authorities. These are also of minor value as gauges of actual prevailing conditions, partly because of the immature state of the art of life-table construction at the time, partly because only restricted areas were covered, and more especially because registration of deaths in these early years was probably very imperfect. Making due allowance for these reservations we may gain an idea of the trend of longevity during the first half of the nineteenth century from the earlier items of Table I.

* Abridged account of a paper read on December 27, 1932, at the Atlantic City meeting of the American Association for the Advancement of Science, Section K (Social and Economic Sciences). The paper will be published in full in *Human Biology*.

It will be seen that early in and up to about the middle of the nineteenth century we are dealing with expectations of life of the order of forty years. The first half of the century may have seen an improvement of about ten years in this figure. In the second half, the improvement was about eight years. In reflecting on these figures it must be remembered that it was naturally easier to make progress when the death-rates were still very high than later, when the country was approaching more and more to the ultimate limit of what could be achieved by modern methods.

With the *United States Life Tables* prepared by James W. Glover begins the truly modern series of thoroughly reliable life

TABLE I
AMERICAN LONGEVITY IN NINETEENTH CENTURY
Expectation of Life at Birth

Territory	Date	Males	Females
Philadelphia, Pa.	1814	25.96*	—
Massachusetts	1850	38.3	40.5
Maryland	1850	41.8	44.9
United States (White)	1860	41.01	—
Massachusetts	1878-82	41.74	43.50
Massachusetts	1890	42.50	44.46
Massachusetts	1893-97	44.09	46.61

* Persons of both sexes, combined.

tables for this country. The main tables relate to the ten Original Registration States in the years 1901 and 1910. For the State of Massachusetts, which had particularly good statistics, the series extends one decade further back, to the year 1890. The series of these tables is continued by the Foudray life table for 1919 to 1920, to which we now add our own life tables for 1930, thus completing the series of four decades for Massachusetts and three decades for the larger area of the United States. Within this period of forty years the mean length of life of males in Massachusetts increased from 42.50 years to 59.48 years, that is, by 16.98 years, a 40 per cent. gain. For females the corresponding figures were 44.46 years in 1890 and 62.74 years in 1930, an increase of 18.28 years or 41 per cent. As already remarked, for the larger area of the Registration States we have life tables for only three decades. Restricting our comparison to the Original

EXPECTATION OF LIFE AMONG WHITE MALES AND WHITE FEMALES IN UNITED STATES ORIGINAL DEATH
REGISTRATION STATES IN 1901, 1910, 1920, 1930

Together with Gain or Loss in Expectation over Some Periods

For the Decennial Ages of Life

Sex and Calendar Period	AGE									
	0	10	20	30	40	50	60	70	80	90
<i>Complete Expectation of Life (e_x) at Age X</i>										
White Males										
1901 ..	48.23	50.59	42.19	34.88	27.74	20.76	14.35	9.03	5.10	2.85
1910 ..	50.23	51.32	42.71	34.87	27.43	20.39	13.98	8.83	5.09	2.99
1919-20 ..	54.05	52.82	44.29	36.47	28.85	21.37	14.62	9.09	5.19	2.75
1930 ..	59.09	54.75	45.73	37.07	28.65	20.95	14.35	9.04	5.22	2.86
White Females										
1901 ..	51.08	52.15	43.77	36.42	29.17	21.89	15.23	9.59	5.50	3.02
1910 ..	53.62	53.57	44.88	36.96	29.26	21.74	14.92	9.38	5.35	3.00
1919-20 ..	56.41	53.82	45.16	37.61	29.95	22.26	15.29	9.59	5.57	3.11
1930 ..	62.62	57.38	48.20	39.53	30.94	22.82	15.60	9.77	5.63	3.18
<i>Increase (+) or Decrease (-) in Expectation of Life</i>										
White Males										
1910 over 1901	+ 2.00	+ 0.73	+ 0.52	- 0.01	- 0.31	- 0.37	- 0.37	- 0.20	- 0.01	+ 0.14
1919-20 over 1901	+ 5.82	+ 2.23	+ 2.10	+ 1.59	+ 1.11	+ 0.61	+ 0.27	+ 0.06	+ 0.09	- 0.10
1930 over 1901	+ 10.86	+ 4.16	+ 3.54	+ 2.19	+ 0.91	+ 0.19	0.00	+ 0.01	+ 0.12	- 0.01
1930 over 1910	+ 8.86	+ 3.43	+ 3.02	+ 2.20	+ 1.22	+ 0.56	+ 0.37	+ 0.21	+ 0.13	- 0.13
1930 over 1919-20	+ 5.04	+ 1.93	+ 1.44	+ 0.60	- 0.20	- 0.42	- 0.27	- 0.05	+ 0.03	+ 0.11
White Females										
1910 over 1901	+ 2.54	+ 1.42	+ 1.11	+ 0.54	+ 0.09	- 0.15	- 0.31	- 0.21	- 0.15	- 0.02
1919-20 over 1901	+ 5.33	+ 1.67	+ 1.39	+ 1.19	+ 0.78	+ 0.37	+ 0.06	0.00	+ 0.07	+ 0.09
1930 over 1901	+ 11.54	+ 5.23	+ 4.43	+ 3.11	+ 1.77	+ 0.93	+ 0.37	+ 0.18	+ 0.13	+ 0.16
1930 over 1910	+ 9.00	+ 3.81	+ 3.32	+ 2.57	+ 1.68	+ 1.08	+ 0.68	+ 0.39	+ 0.28	+ 0.18
1930 over 1919-20	+ 6.21	+ 3.56	+ 3.04	+ 1.92	+ 0.99	+ 0.56	+ 0.31	+ 0.18	+ 0.06	+ 0.07

TABLE IIb

ANNUAL RATES OF MORTALITY PER THOUSAND AMONG WHITE MALES AND WHITE FEMALES IN UNITED STATES
ORIGINAL DEATH REGISTRATION STATES IN 1901, 1910, 1920, 1930
Together with Increase or Decrease in Mortality Rates over Some Periods

At Decennial Ages

Sex and Calendar Period	AGE									
	0	10	20	30	40	50	60	70	80	90
<i>Probability per Thousand (1,000q_x), at Age x, of Dying Within One Year</i>										
White Males										
1901 ..	133.45	2.74	5.94	7.99	10.60	15.37	28.59	58.94	133.53	262.78
1910 ..	123.26	2.38	4.89	6.60	10.22	15.53	30.75	62.14	135.75	255.17
1919-20 ..	92.43	2.27	4.59	6.47	8.44	13.02	26.48	59.00	129.63	253.60
1930 ..	61.78	1.52	2.88	3.76	6.73	13.82	28.84	59.64	131.06	255.54
White Females										
1901 ..	110.61	2.46	5.54	7.72	9.31	13.37	25.06	53.69	121.15	245.32
1910 ..	102.26	2.06	4.20	6.03	8.03	12.59	25.83	50.63	125.79	247.59
1919-20 ..	73.61	1.91	4.64	6.84	7.32	11.77	23.64	54.74	119.88	240.40
1930 ..	49.17	1.10	2.59	3.47	5.12	10.26	22.65	51.24	118.90	233.63
<i>Increase (+) or Decrease (-) in 1,000q_x</i>										
White Males										
1910 over 1901	- 10.19	- 0.36	- 1.05	- 1.39	- 0.38	+ 0.16	+ 2.16	+ 3.20	+ 2.22	- 7.61
1919-20 over 1901	- 41.02	- 0.47	- 1.35	- 1.52	- 2.16	- 2.35	- 2.11	+ 0.06	- 3.90	- 9.18
1930 over 1901	- 71.67	- 1.22	- 3.06	- 4.23	- 3.87	- 1.55	+ 0.25	+ 0.70	- 2.47	- 7.24
1930 over 1910	- 61.48	- 0.86	- 2.01	- 2.84	- 3.49	- 1.71	- 1.91	- 2.50	- 4.69	+ 0.37
1930 over 1919-20	- 30.65	- 0.75	- 1.71	- 2.71	- 1.71	+ 0.80	+ 2.36	+ 0.64	+ 1.43	+ 1.94
White Females										
1910 over 1901	- 8.35	- 0.40	- 1.34	- 1.69	- 1.28	- 0.78	+ 0.77	+ 2.94	+ 4.64	+ 2.27
1919-20 over 1901	- 37.00	- 0.55	- 0.90	- 0.88	- 1.99	- 1.60	- 1.42	+ 1.05	- 1.27	- 4.92
1930 over 1901	- 61.44	- 1.36	- 2.95	- 4.25	- 4.19	- 3.11	- 2.41	- 2.45	- 2.25	- 11.69
1930 over 1910	- 53.09	- 0.96	- 1.61	- 2.56	- 2.91	- 2.33	- 3.18	- 5.39	- 6.89	- 13.96
1930 over 1919-20	- 24.44	- 0.81	- 2.05	- 3.37	- 2.20	- 1.51	- 0.99	- 3.50	- 0.98	- 6.77

Registration States we find, according to Table IIA and B, that in the period of 29 years from 1901 to 1930, the expectation of life at birth among white males has increased from 48.23 years to 59.09 years, that is, by 10.86 years or 22.5 per cent. The corresponding figures for females are 51.08 for 1901 and 62.62 in 1930, a gain of 11.54 years or 22.6 per cent.

The improvement in mortality has been by no means uniform over the whole range of life. The chief gains have, of course, been in the first year of life, where the mortality in former times was excessively high and was most open to improvement. At other periods of life there has in some instances been actual retrogression. Thus in the decade 1920 to 1930 white males at ages 50 and over show an actual increase in the death-rate. On the other hand, at ages 40 and under there is systematic improvement throughout each separate decade from 1901 to 1930. Among white females the situation is a little more favourable, gains being shown through the whole range of life in 1930 as compared with either 1920, 1910, or 1901, although it should be pointed out that the gains after age 50 years were meagre.

QUALITATIVE CHANGES IN MORTALITY

The single figure obtained by forming a quotient of deaths by population is an inadequate expression of the mortality conditions in a population, even when separate quotients are formed for each age group. The changes in mortality that have taken place are much more completely described, if in addition we inquire into the course of events with regard to separate causes of death. An examination of this kind brings out certain very significant facts. Table III below exhibits certain of these facts very clearly. In this table there are shown in order of rank the twenty principal causes of death for two separate quinquennia, namely, 1901 to 1904 and 1925 to 1929. This table shows immediately that very important changes have taken place in what might be called the internal *constitution* of the death-rate. Certain diseases that thirty years ago ran high in the toll of human life now do not enter into the accounting of important causes at all, and conditions which now assume high positions in the list were not included at the beginning of the twentieth century. Only 11 out of the 20 diseases appear in both lists; and with the single exception of chronic nephritis, the relative rank of these is now different from that in the earlier period.

TABLE III

AVERAGE ANNUAL DEATH-RATES PER 100,000 FOR LEADING CAUSES OF DEATH, 1900-04 AND 1925-29. TOTAL PERSONS IN ORIGINAL, DEATH REGISTRATION STATES

Cause of Death and Rank, 1900-04	Annual Average Death-rates		Cause of Death and Rank, 1925-29	Annual Average Death-rates, 1925-29
	1900-04	1925-29		
1. Tuberculosis (all forms)	184.7	77.2	1. Organic heart disease ¹	219.7
2. Pneumonia (all forms)	161.5	103.1	2. Cancer	114.3
3. Heart disease ¹	127.7	219.7	3. Pneumonia (all forms)	103.1
4. Nephritis ²	93.6	96.6	4. Nephritis ²	96.6
5. Diarrhoea and enteritis (under 2 years)	91.4*	18.0	5. Apoplexy	88.3
6. Apoplexy	75.6	88.3	6. Tuberculosis (all forms)	77.2
7. Cancer	67.5	114.3	7. Premature birth	33.4
8. Ill-defined causes	48.4	2.4	8. Influenza	25.1
9. Old age	45.1	6.5	9. Diabetes mellitus	22.6
10. Bronchitis ²	39.3	7.7	10. Automobile accidents ⁵	21.5
11. Meningitis ³	33.1	5.6	11. Angina pectoris	19.6
12. Diphtheria	32.8	7.6	12. Diarrhoea and enteritis (under 2 years)	18.0
13. Premature birth	32.6	33.4	13. Accidental falls	16.5
14. Typhoid fever	26.8	2.4	14. Appendicitis	15.2
15. Influenza	22.9	25.1	15. Suicide	14.2
16. Paralysis ⁴	22.5	3.0	16. Congenital malformations	14.0
17. Congenital debility	21.8*	5.4	17. The puerperal state	12.1
18. Convulsions	19.8	1.1	18. Hernia, intestinal obstruction	10.8
19. "Other diseases of the stomach"	18.5	3.0	19. Bronchitis ³	7.7
20. Lack of care	15.1*	0.1	20. Diphtheria	7.6

* Death-rate in Registration Area.

¹ Excluding pericarditis, acute endocarditis, acute myocarditis and angina pectoris.

² Acute and Chronic.

³ Including epidemic cerebrospinal form.

⁴ Without specified cause.

⁵ Excludes deaths in collisions of automobiles with railroad trains or street cars.

Of the diseases which were major causes of death 30 years ago, tuberculosis, heart disease, cancer, diphtheria, diarrhoea and enteritis, and premature birth are the most noteworthy examples of change in rank.

In the first five-year period of the century, tuberculosis led all other diseases by a large margin, with a death-rate of 184.7 per 100,000. In the quinquennium 1925 to 1929, this disease fell to sixth in rank with a death-rate of only 77.2—not greatly in excess of one-third of the earlier figure. Organic heart disease, which was third in order at the beginning of the century, is now the leading cause of death, with a mortality almost double that of thirty years ago.

In 1900-04 cancer was seventh on the list; now it is second, and the death-rate has increased 69 per cent. Cancer, often so terrible in its manifestations, is the disease which has shown the most extreme change for the worse during the current century. The increase in the crude death-rate from cancer, as well as from organic heart disease, is, however, due in part to the general aging of the population.

Infantile diarrhoea has dropped from fifth rank in 1900-04 to twelfth in 1925-29, and there has been a drop in the actual death-rate from 91.4 per 100,000 to 18.0. But the fall in the death-rate from this disease is only a part of the general improvement in the mortality among infants.

Although there have not been large changes in the death-rates from premature birth and influenza, their relative ranks rose considerably in 1925-29 as compared with 1900-04. These changes are due to the fact that a given numerical mortality-rate now entails a much higher position in the list than the same figure would have received thirty years ago.

For certain of the causes of death which appear only in the 1925-29 list, the death-rate has increased enormously since 1900. That for diabetes has doubled; that for angina pectoris has tripled; and for appendicitis there has been a rise of approximately 50 per cent. Automobile fatalities were so infrequent early in the century that no enumeration was made of them at all until 1906; now they stand tenth in importance among all causes of death.

The most conspicuous example of a disease which has utterly disappeared as a leading cause of death is typhoid fever. Thirty years ago it ranked fourteenth on the list. Now typhoid fever is

a vanishing disease. The reduction in its mortality-rate is one of the greatest triumphs of modern sanitary science.

CURTAILMENT OF LIFE BY DIFFERENT CAUSES

Another way of exhibiting the changes that have taken place in the qualitative composition of mortality consists in computing the number of years of life forfeited, on an average, to the several most important causes of death, and the changes that have occurred in these numbers.

The computation has been actually carried out for some of the principal causes, on the basis, first, of the life table for 1920 and the mortality for that year classified according to causes of death, and, second, on the basis of the life table for 1930 and the corresponding classified mortalities.

In 1920 the disease that took the heaviest toll, in years of life, was tuberculosis, 1.9 years among white persons at age zero. Among white males accidents were a close second, with 1.8 years. Diseases of the heart also ranked high, with 1.8 years for males and 2.0 for females.

By 1930 the loss in the expectation of life at birth ascribable to tuberculosis was reduced to 1.1 years among white persons, but the loss from heart disease had gone up to 2.4 years among white males and 2.6 among white females. The loss from cancer went up from 0.9 years to 1.1 years among white males, and from 1.5 years to 1.8 years among white females.

Prospects for future improvement.—The improvement in mortality and the gains we have recorded in our fight against disease suggest the question: How much farther may we expect the improvement to go? What may we reasonably look for as the future average length of life? Some writers have expressed themselves in unbounded optimism on this point, but a thoughtful consideration of the facts does not justify such extreme optimism, at least in the present state of knowledge and of evolution of the human organism. The 1.1 years of life still being lost, on an average, per person, in the white population through the ravages of tuberculosis, we may, indeed, hope to see deleted from the vital account of the future population, for the mortality from this disease has for many years past declined rapidly and steadily. With regard to certain other groups of causes, too, we may be optimistic; among these a most serious group are the diseases and abnormalities of early infancy.

Here the remedy will lie chiefly in prenatal care for the expectant mother.

The picture is different when we come to the causes of death characteristic of the later ages. Here gains have been small, or there have been actual losses, with regard to the mortality from certain diseases in the recent decade, in the United States.

Hypothetical life table.—Guided by past experience, by what has been accomplished, and a knowledge of where we have so far failed, we may briefly consider the somewhat speculative question of the ultimately attainable expectation of life—ultimately, that is, in the light of our present knowledge, and without intervention of radical innovations or phantastic evolutionary changes in our physiological make-up, such as we have no competent reason to assume. Accordingly a hypothetical life table has been constructed which may be found useful as a basis for various computations.

This life table is based fundamentally on the New Zealand life table for females 1921-22, which still stands first among life tables as a record of longevity. With this as a background, a series of values of q_x , or specific mortality, for each age of life have been estimated, using our best judgment of what we thought could reasonably be expected as an ultimate achievement. In selecting these figures we have had the guidance, not only of the New Zealand table, but also of our own 1930 table, and the experience of the Metropolitan Life Insurance Company among some of the more favoured classes of policy-holders. It is felt that what can to-day be achieved among the more favoured classes, should be attained in the future by the average man, and from this standpoint we believe that the figures we have adopted are essentially reasonable. We feel that we have not unreasonably trimmed down the values of q_x . From the values of q_x so obtained, the hypothetical life table exhibited in Table IV below has been constructed. It shows an expectation of life at birth of approximately 70 years. We may compare this ideal life table with the earliest in the series of official United States Tables, namely, that for 1901 prepared by J. W. Glover, and also with our latest 1930 table. At age zero, i.e. at birth, the 1901 table exhibits an expectation of life (mean length of life) of 49.24 years. The 1930 table betters this by over 10 years, giving an expectation of 59.70. The hypothetical table again betters this by 10 years, making the average for the American people 69.6 years, or, to speak in round numbers, 70 years, the Biblical three score and ten.

This, judging by all present signs, must be regarded as about the limit of what we may reasonably hope to attain by the application of modern medical practice, public health methods, and sanitation.

TABLE IV
HYPOTHETICAL LIFE TABLE

Representing Ultimate Longevity Attainable under Modern Medical and Sanitary Science

Age (<i>X</i>)	Number attaining Age <i>X</i> out of 100,000 Born Alive Survivors <i>l</i>	Probability per 1,000 of Dying within one Year after Attaining Age <i>X</i>			Average Length of Life Expectation of Life <i>e_x^o</i>
		Probability 1,000 <i>q_x</i>	Ratio to Corresponding Item in		
			New Zealand (1921-22) Females	United States Registration States (1930 in 1930) White Females	
0	100 000	25.00	0.649	0.516	69.60
1	97,500	4.27	0.697	0.518	70.38
2	97,084	3.06	0.729	0.677	69.68
3	96,787	2.11	0.754	0.674	68.89
4	96,583	1.76	0.775	0.739	68.03
5	96,413	1.50	0.794	0.754	67.15
10	95,849	0.95	0.848	0.880	62.53
15	95,354	1.28	0.795	0.795	57.84
20	94,639	1.79	0.734	0.665	53.26
25	93,730	2.13	0.674	0.647	48.75
30	92,693	2.38	0.670	0.657	44.27
35	91,531	2.74	0.701	0.657	39.80
40	90,200	3.26	0.709	0.623	35.35
45	88,568	4.43	0.755	0.644	30.95
50	86,296	6.47	0.785	0.689	26.70
55	83,102	9.18	0.789	0.673	22.62
60	78,807	12.78	0.792	0.622	18.71
65	73,061	19.24	0.795	0.620	14.98
70	64,803	32.12	0.797	0.671	11.55
75	52,491	57.55	0.850	0.774	8.63
80	36,271	92.93	0.900	0.812	6.35
85	19,901	148.00	0.894	0.888	4.55
90	7,493	224.00	0.810	0.977	3.28
95	1,695	308.00	0.691	1.000	2.42
100	200	410.00	0.600	1.001	1.78

If further gains are to be achieved they must come slowly from the application of new and unforeseen discoveries in the fields of medicine and sanitation, and such gains will at best be of a comparatively minor order.

RACIAL AND SOCIAL PROBLEMS IN THE LIGHT OF HEREDITY

By PROFESSOR R. RUGGLES GATES, F.R.S.

MODERN investigations have made it clear that an extremely wide range of abnormal physical and mental conditions, which have probably arisen as mutations in the past, are inherited as Mendelian units from generation to generation. Their inheritance can frequently be traced through many generations, and sometimes over a period measured in centuries. More recently has been recognized the fundamental fact that in hybridization between different races of mankind Mendelian segregation also occurs, as it does in crosses among animals and plants. This alters the whole outlook on problems of interracial crossing.*

A knowledge of these facts and an appreciation of their consequences is of the utmost importance for the future of mankind. For the time has come when man must take a hand consciously in his own evolution. Before the war it seemed that the basic conditions of mankind were stable, and many believed in the necessarily steady progress of mankind without quite being able to say what constituted progress. But during the war, and perhaps even more in the post-war period, mankind has been living dangerously. These dangers lurked, of course, in our pre-war civilization, but it required the welter of the war and the confusion of post-war economic, financial, and monetary conditions to show them in their stark and hideous nakedness. As Mr. G. P. Gooch has well recognized, civilization is a co-operative achievement, and for civilization to advance or even to maintain itself the forces and organizations for co-operation must continually exceed in potency and range the agencies making for antagonism, disruption, and disunion. It remains to be seen whether mankind is capable of learning from the last war and its effects or whether Western civilization as we know it will destroy itself, like the Greeks in the Peloponnesian wars, through failure to compose the antagonisms and dislocations, racial, economic, and monetary, resulting from the last decade of human greed.

As biologists, we have to recognize that economics and sociology deal with fundamentally biological problems—the food, raiment, and relationships of mankind. Sociologists are prone to disregard heredity in their disquisitions on the problems of human societies.

* The results of racial crossing from a genetic point of view have been discussed elsewhere (*Heredity in Man*, 1929, Chap. XVI).

They are nearly all environmentalists in their outlook, the superficiality of which arises mainly from their lack of adequate knowledge or training in biology. But, as we have seen, the principles of heredity in man are sufficiently well known to require that they now be built into our outlook regarding the whole future of mankind. This involves us deeply in questions, on the one hand, of sociology and eugenics, on the other of racial crossing and racial movements over the earth's surface.

The time has passed when peoples can migrate freely over the earth, like the Nordics entering India, the Vikings raiding England, the Mongol incursion into Europe, or the Maori invasion of New Zealand. Every habitable part of the globe is now more or less sparsely or densely populated, and the over-population of some areas is so great that it is questionable whether the present world population of nearly 2,000 million can be greatly exceeded without lowering the standards of living of mankind. War was once the means by which one race displaced another in a particular area, and some such wars between early or primitive peoples may have made for the advancement of the race, since it led to the replacement of a more primitive by a more advanced people. The wars of modern history have generally had one of two results: either a primitive race has been replaced by a more advanced one, as when the white man took for himself the hunting-grounds of the American Indians with subsequent extinction of the native tribes; or the conquered people have merely suffered a change of nationality without any change of racial composition or any adverse change in their circumstances. Perhaps the most striking case of the latter kind is that of the French population of Quebec. Too frequently even now the change of nationality is accompanied or followed by exactions or repressions affecting adversely the language, education, and occupations of the people. The advance of Science and the increase of populations have now, however, made war between civilized countries so terrible in its consequences that civilization itself is endangered and all mankind is the loser. Until Europe and America can agree to abolish war and competitive armaments in a far more drastic way than has yet been accomplished, the foundations of our civilization are in serious danger of being swept away. Civilization can only be rendered stable by a great increase of internationalism in financial, commercial, and governmental spheres. The increase of nationalism since the war has involved a setback to the human race in many

areas. President Wilson's "self-determination of free peoples," although its aim was to make the world "Safe for Democracy," has had the effect, as Muret* says, of spreading revolutionary ferment through the world, and its effects still continue. This spirit of nationalism needs to be curbed in all countries and replaced by a great extension of international co-operation in every field of human activity. The disregard of these principles in connection with tariffs and war debts has apparently led the world to its present impasse.

If, now, we consider the problems of racial crossing, there are two possibilities before us: We may advocate unlimited miscegenation of all races, in the vain hope of unifying humanity over the whole planet; or we may aim at its restriction or prevention in the interests of racial homogeneity. Everyone seems to have strong opinions either against or in favour of racial crossing. Very few can view the subject dispassionately or scientifically. Complete prevention is, of course, impossible and undesirable. Man wanders widely. I have seen a Japanese married to a Loucheux Indian woman in the Canadian Arctic. Similarly, the offspring of a Kanaka from Hawaii and an Eskimo woman may be seen in the Mackenzie delta. The white man has left sporadic descendants with nearly all races.

But we must approach the matter from a biological point of view. It goes without saying that nationality must be distinguished from race, and we need also to recognize that there are many degrees of racial difference. What value or zoological rank is to be attached to racial differences? Interfertility is no longer a criterion of species, and I think we must admit that many modern zoological species are no more distinct than the main colour varieties of mankind. Skulls as different as the Nordic and Mongolian, if found fossil, would probably be regarded as separate species. They undoubtedly would if they belonged to animals other than man. But there has long been a conventional habit of regarding all living races as belonging to *Homo sapiens*. In my opinion this is clearly without justification, and it would not be done if zoologists applied to man the conceptions of species which are widely applied to animals. Crosses between the colour varieties of mankind are essentially interspecific in the genetical sense. They involve duplicate factors for skin colour. The racial differences in hair characters are also, for the most part, not single

* *Twilight of the White Races*, 1926.

unit differences, but a more complicated series such as characterizes interspecific crosses. For practical purposes we may then recognize the white, yellow, and black divisions of humanity and the Australian aborigines* as representing separate species recognizing at the same time that the brown and red stand nearer the yellow race. The Indians of America are being gradually absorbed into the white and black races, but with this exception and certain others to be mentioned later, it appears probable that the main colour varieties of mankind will continue largely to occupy their own continental areas. They will remain separate "species."

From what we already know of racial crossing it is clear that the results of each racial cross must be considered on its merits. In general, crosses between nearly related races are not detrimental but frequently advantageous. Most modern populations in all countries are composed of such mixtures as the Nordic, Alpine, and Mediterranean of Europe, or more nearly related types. Controversy only arises when we consider hybridization between the more diverse races, which we have regarded as species, and it reaches its most acute form when the two races both occupy the same country in considerable numbers. Under these conditions it must be admitted that it is mainly the lowest and least self-respecting elements in both communities—those who have failed to find mates among their own kind—who indulge in miscegenation. It is well known that crossing has also frequently occurred between men of higher class and sometimes of exceptional ability and women of primitive races. The father of Alexandre Dumas the Elder (1802-70) was a French general of marked ability under Napoleon. He was born in Santo Domingo, the natural son of a marquis and a negress. Dumas had therefore one-quarter of negro blood, and no doubt he inherited his ability from the marquis. It was transmitted through three generations to an illegitimate son, Dumas the Second, also a famous novelist.

I have used the term primitive, and some may think it needs justification when applied to the black race. Much of what has been written on this thorny subject is of little worth, its value being largely nullified by undue prejudice either for or against. Apologists for the negro appear to think it necessary to show that

* *The People of the Leaves*, by Vivian Meik, describes a small tribe of little people in the jungles of India, who are in many respects little above the level of animals.

even although his achievements bear no comparison with those of the white races, yet there remains some sense in which he is potentially the equal of European races if only he were given more opportunity. But it is well to remember that the white races in Europe largely created their own opportunity, as history indicates. African races have had contact with contemporaneous civilizations from the time of ancient Egypt and the Queen of Sheba, but they have never risen above the lower grades of human culture, unless we make an exception of the negro influence in Timbuctoo. Contrast with this the Japanese, who in one generation of contact with the West were able to absorb and begin making contributions to the advance of Science.

Of course, the negro in America occupies in many respects a different position from the negro in Africa. In the first place, anthropologists are, I believe, agreed that the percentage of negroes remaining of pure black blood in North America is quite small. It appears probable that all coloured people who show ability in Western civilization have derived it from their white ancestry. Booker T. Washington, the son of a white man and a slave, is a case often cited, and there are a number of others.

The term negro as commonly used in the United States is based on the misconception that depth of skin colour is a measure of the amount of black ancestry in an individual. But skin colour is only one of many characters differentiating the races, and under the laws of recombination in crosses individuals with a coal-black skin may have other "white" features, including mentality, and again individuals with white skins may have inherited some of the hair, nose, or lip characters of the black race. Such cases are common enough in Brazil, where free intercrossing has been going on for centuries and there has never been a "colour line." In the United States, no doubt, hundreds of segregates with white skins but other negroid characters cross that line every year. In this way negro blood is being slowly diffused through an increasing number of the population.

That being the case, it may well be asked whether it is worth while trying to prevent or even retard the ultimate complete intermingling of the white and black races in America, where so much intermixture has already taken place. The answer to that question will depend upon what values we attach to racial differences. The foundation of the caste system in India was clearly a prehistoric attempt to prevent the light-skinned invading

Nordics from mingling with the dark-skinned natives. The pink colour of the modern East Indians clearly shows the failure of that attempt. It was probably a matter of relative numbers and reproductive rates. In other words, the Nordics were swamped by native blood.

Modern conditions are, however, very different from those of early centuries. The better elements both of the black and the white race are opposed to intermarriage, and their cohabitation could be reduced to a minimum.* It is the large existing mulatto population, with every degree of intergrade between the races, which forms a bridge over which white-skinned mulatto segregates can easily pass. The birth-rate of the mulattoes varies, however, as Holmes has shown, in the United States, and whether their numbers will be maintained remains to be seen. Efficient members of either the white or the black race should dislike seeing their qualities diluted with blood from a widely diverse race. No one who has beheld the lithe muscles of a coloured athlete would withhold admiration, but this is not an argument for diluting his type with white blood. Some have held that the mulattoes are definitely inferior to both parent races. It appears much more likely, however, that the first crosses are really intermediate between the races both physically and mentally, but being social misfits they are more likely to develop badly in the social sense. This is in itself, to any but the rabid supporter of free miscegenation, a strong argument against their production.

The Cape Coloured of South Africa are a mulatto population which took its rise with the Dutch occupation of Cape Colony. They have long married mainly among themselves and to only a small extent with the white or black races. Here we have, in effect, a new race arisen by crossing. It certainly appears that with man, as with animals, there is generally a certain repugnance to mating with individuals of a different type. The upholders of racial crossing call this prejudice, but it appears to be based on sound instinct deeply rooted in human nature. Indeed, it appears that Sir Arthur Keith is right in his conclusion that "prejudice" (without arrogance) has an important part to play in maintaining the relative purity of races. Observations of the populations in parts of South America, where free interbreeding of Indians,

* It must be pointed out, however, that there is even in this country a surprising number of white women married to black men, particularly in the seaports.

negroes, and whites has long taken place, does not by any means lead one to recommend the resulting products either for their industry, their probity, or their governmental ability. Nor has the dominance of the black race, either in Haiti, Liberia, or Abyssinia, led to results which can other than damp the ardour of those who expected the black race to show capacity for progressive self-government.

As regards Africa, it is difficult to estimate the immense effects of direct or indirect contact with white civilization on the native black races over a period of several centuries. The dark side of that picture, including the slave-trade and the Congo exploitation, must not be forgotten, nor must we forget that the white men who put forward the peculiar eighteenth-century dogma that all men are free and equal were themselves owners of slaves. But, to mention a single instance, the food habits of the native races over a large part of Africa have been much improved by the introduction of maize in place of the unsatisfactory native millet. To realize what untouched native African civilization in the acme of its vigour could produce, we must consider the bloodthirsty atrocities of Ashanti and Dahomey or the barbaric ruthlessness of the Zulus under Chaka.

Nevertheless, this is not the whole picture. Jamaica probably shows best what the black race under white supervision can do. Its population consists of about 15,000 whites, 700,000 negroes, and 160,000 mulattoes. Some 11,000 of the blacks and coloured own land, and although there is some sort of colour bar, it appears to have been relaxed in the past. Under these conditions the blacks have no doubt advanced in status, as Lord Olivier claims. Those who are familiar with conditions in other parts of the West Indies recognize that the negro under capable and kindly white supervision and leadership may show steady progress.

It must also be recognized that the negro is definitely adapted, especially by his broad nostrils and the colour and glands of his skin, to life in a tropical or sub-tropical climate. It is not unusual for native workers in the cities of South Africa to return for a holiday to the sub-naked life of the kraal. The ways of the white man are dropped with ease when opportunity offers. The white man in tropical Africa should aim not to supplant but to develop the native as a producer and a contributor to the world's work. He should serve both to aid progress and prevent exploitation. I think we may say that this has generally been achieved by the

Mandates under the League of Nations, whose Covenant states that the principle should be applied "that the well-being and development of such peoples form a sacred trust of civilization." The countries involved render an annual report to a permanent Commission of the League of Nations. In a paper on Kenya issued by the British Cabinet in 1923, it was stated that "the interests of the African Natives must be paramount," and that it is the "mission of Great Britain to work continuously for the training and education of the Africans toward a higher intellectual, moral, and economic level." In 1920 each county in the Southern United States formed a committee containing whites and blacks to co-operate and correct injustices. In the same year in South Africa the Native Affairs Act provided for the formation of native councils throughout the Union. They had long been in existence in Cape Province.

Probably the ideal conditions for the black race have been reached on the Gold Coast, which now grows and exports nearly half the world's cocoa. Native ownership of small plantations has been fostered, and a contented population has been guided and instructed in methods of cultivation and treatment. Similar relationships of supervised co-operation and progress between the white and black races are being applied with success in several other parts of Africa and might well be tried in parts of the Southern States. The number of whites occupying such an area should be reduced to a minimum and consist entirely of supervisors. This for the welfare of both races. In the United States, where "negroes" represent some 10 per cent. of the population, and the bulk of them are of more or less mixed blood in varying degrees, obviously no single solution will apply to all. But even here it appears to be to the interests of all that miscegenation should be discouraged and condemned, and, where necessary, prohibited. Virginia has such a law.

In what I have already said I do not wish to imply that the African negro is necessarily lacking in ability. That he belongs naturally to a more primitive state of culture and development appears to me undeniable. But, as J. H. Oldham remarks,* every race contains individuals who are brave or cowards, selfish or unselfish, active or indolent, kindly or callous, and he might have added, with ability or without. Nevertheless it seems clear that the frequency of such individuals varies from race to race. The

* *Christianity and the Race Problem*, 1924.

African chief who is shrewd and able in ruling his people and dealing with incomers is well known. Some even aver that the South African natives must be kept ignorant to avoid competition with the white man. But surely the best interests of the South African native are served, not by drenching him in European education, but by enabling him to continue his own natural development where ability places him above his fellows. Some accept the idea of the mental equality of the black race with the white. Personally, I am not inclined to accept this view until some specific evidence can be brought to offset the large amount of general evidence to the contrary.

I have perhaps dwelt unduly on the black problem, because it is so conspicuous in the United States, South Africa, and other parts of the world. But racial crossing and our attitude towards it has even wider implications. If the main land divisions of the earth are to remain for ages as relatively pure reservoirs of the various colour types of mankind as they obviously must, what advantage is to be gained by fostering a penumbra of intermediates, a rainbow of intergrades, whose existence and recombinations in their descendants create quite unnecessary problems for which, in the nature of things, there can frequently be no satisfactory solution?

By way of contrast let us look for a moment at some other racial crosses. Anthropological reasons for regarding the Polynesians as more nearly related to the white race than are black, yellow, or red men are beginning to emerge. This view is borne out by the results of crosses between Europeans and Maoris in New Zealand, and also by the history of the Pitcairn Islanders. In both cases the cross appears to be a favourable one, and the differences are not so great that segregation causes difficulties in later generations.

Notwithstanding the long period over which sporadic crossing has taken place between Europeans and American Indians, very few studies of their results have been published which are at all satisfactory from a genetical or an anthropological point of view. As a general result of the study of crosses,* already described, between Ojibway Indians and whites in Northern Ontario, it was concluded that these hardy people, occupying a hunter's and trapper's country, are, on the whole, well adapted to the conditions in which they live, that they excel the pure Indian in activity and

* See Gates, *Journ. Roy. Anthropol. Inst.*, Vol. 58, 1929.

intelligence, and that as pioneers they push the ruder elements of the white man's civilization farther north than it would otherwise extend.

It is possible that such synthetic races might, with advantage, be established on limited areas in certain other parts of the world. But the negroes and the Eskimos are already conspicuously adapted to their respective climatic conditions by natural selection, and similar processes have clearly taken place to a less extent in races which have occupied for long periods less extreme climates. The only favourable chance for the application of this principle would then occur among races occupying the temperate zones, which are already largely in the hands of the white (and in Asia the yellow) race.

Although American immigration and Anglo-Saxon colonization have largely ceased since the war, yet other racial movements are occurring in large numbers. In 1924, after the passage of the law which terminated Japanese immigration into California, Japan made an immigration treaty with Mexico. Large numbers of Japanese have also entered Brazil, and by 1926, 100,000 Japanese had taken up their homes in Latin America. Similarly, some 22,500 East Indians have entered Kenya, in addition to many already in Natal. The populations in many of the countries of "Latin America" have become mainly and increasingly Indian and negroid. Nowhere, perhaps, has democracy made a more decisive failure than in some of these countries.* In the meantime northward migration of Mexicans took place, until there are some half-million Mexicans in Texas and about half the population of Arizona is of Mexican origin. From whatever angle they are viewed, the racial mixture represented by the Mexican can hardly be regarded as an unqualified success.

Gresham's law evidently applies to peoples as well as to money. Any race working longer hours for lower wages and with a lower standard of living will replace a race with higher standards where the two are in equal competition. Oriental nations and others with low standards of living must therefore recognize the right of Western countries to control the composition of their own populations. Similarly, the principle needs recognition that emigration from over-populated countries, such as India, China, and Japan, does not appreciably relieve the congestion in those

* Many such instances show how useless it is to give votes to those who lack the capacity to govern.

countries while their birth-rates remain unchanged,* nor does over-population necessarily lead to emigration. The first of these principles was recognized by the British Empire in 1918, when the Imperial Conference passed a resolution that it is an inherent function of the Governments of the British Commonwealth, including India, that each should enjoy complete control of the composition of its own population by restriction of immigration from elsewhere.

One further matter may be touched upon, namely, the political representation of different peoples living in the same country. It appears that the principle to follow in some form in all such cases is that adopted by Canada, where the English of Ontario and the French of Quebec live amicably side by side in separate Provinces, each with its local government and neither attempting to force its customs on the other. In countries such as India, where the races are intermingled in the same area, each can similarly have its communal representation in the Government, just as the Maoris in New Zealand elect their own representatives to Parliament. A wider extension of this principle would surely tend to eliminate friction and rivalry between races in various parts of the world.

Finally, in our view, not only should crossing between widely different races be generally discouraged, but it should be recognized that the establishment of pockets of population in new countries through mass migration is also generally to be deprecated in the modern world. Such pockets are not absorbed, even after centuries of contact with surrounding peoples. They remain too often to form a patchwork of problems and difficulties in the country to which they have migrated. This is true of the younger as well as the older countries. The more populous countries of the globe should no longer seek an outlet for their increasing populations by mass emigration to other countries. Rather must the necessity be recognized for limiting the numbers of their own population, raising its quality and improving the standard of living, particularly in Oriental countries where it is often so low as to be scarcely above the level of subsistence. Such limitation of population should eliminate one of the causes of war, which has too often been caused by a country wishing to find an outlet for its surplus

* This principle is recognized by Sir Charles Close in his review of the present population situation in South and East Asia (POPULATION, Vol. I, p. 42).

population instead of taking measures to limit their numbers. The danger of the downfall of civilization through the recrudescence of war seems almost immeasurably great at the present time. But if mankind survives this danger through the application of sanity and reasonableness to the problems of humanity and a curbing of the rancorous spirit of chauvinism in international relationships, we may look forward to a future in which the problems of the human race will be solved in a scientific spirit.

ON THE CONCEPT OF AN OPTIMUM IN POPULATION THEORY

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THE following comments on the current theory of population do not claim to be new or original. They aim merely at setting out in an explicit form certain considerations of which all economists are fundamentally aware, but which are sometimes in danger of being forgotten.

1. In the first number of *POPULATION* the word "optimum" is used in connection with the density of population some fifteen times. In most cases it bears the meaning which was attached to it by the founders of the modern theory, Professors Cannan and Carr-Saunders. By the optimum density of population is meant that density which, with given technique and natural resources, yields the highest individual or average standard of life. Correlated with it are the two states of over-population and under-population, characterized by the fact that the individual standard of life is lower than it would have been had the population been respectively smaller and greater than it is. These definitions are by now a standardized part of the vocabulary of economic analysis.*

2. The immediate importance of the optimum concept is, of course, that it exorcises the Malthusian bogey: that it diverts attention from the fear of famine and starvation and invites a scientific examination of the connection between the numbers in a community and its material welfare. Not less noteworthy is its flexibility. It can be applied not merely to a given country but to any part of it, however small, or to the world as a whole: it can be understood, not merely of the whole population of a given geographical area but of any section or group within it. Thus we may say that one part of a country is over-populated and another under-populated, or that agriculture is over-populated and industry under-populated, meaning by such statements that the inhabitants of the under-populated areas, or the members of the under-populated callings, would be better off individually if there were more of them, while those of the over-populated areas or

* Sir Charles Close, however, adopts a rather different type of concept (*POPULATION*, Vol. I, p. 43). For him the optimum density is that which secures the maximum "moral, mental, and physical fitness" of the race. The implications of this change in definition are discussed below, §5.

callings would be better off individually if there were fewer of them.

There is a difficulty, however, if we try to use the concepts over a wider and a narrower range simultaneously. If the North of England is over-populated in the technical sense, and the South of England is under-populated, can we properly make any assertion of the same kind about England as a whole? In this case the effect of a change in the number of inhabitants of England upon their average individual standard of life will depend upon where the change takes place. An increase in the south would raise it, an increase in the north would lower it; and conversely with a decrease. If we are to be quite accurate, then, we can only speak of England as having a density of population greater than, equal to, or less than the optimum if we assume that it is distributed, both geographically and functionally, in the most advantageous way possible under the circumstances.* It follows that as applied to a whole country (and, still more, to the world as a whole) the optimum concept is a tool for long-run analysis only. We cannot use it effectively, for instance, in discussing the post-war unemployment problem in Great Britain, for the essence of that problem is precisely the fact that the available resources are *not* distributed in the most advantageous way possible. Over-population must show itself, not in unemployment, but in an inappropriately low standard of life when there is no unemployment.

3. This difficulty apart, why is it that that density of population which secures the highest average individual standard of life in any area is called its "optimum" density? If all that is meant is to *define* the optimum in this way, then we need not quarrel with it, though the word is ill-suited by its associations for use in a colourless statement of fact. In that case population is at the optimum point when the advantages of large-scale production come to be exactly offset by the disadvantages of increasing pressure upon the available natural resources. Such a concept is, of course, highly abstract. It requires simplifying assumptions as regards not merely the "state of the industrial arts" and the

* To say, with Capt. Pitt-Rivers (POPULATION, Vol. I, p. 11), that in the case of maldistribution a conclusion can be arrived at for the country as a whole by taking the *mean* between the over- and the under-populated areas, is to forget that two blacks do not make a white. The losses caused by over-population and under-population cannot be offset against one another—except by thinking away the maldistribution.

possibility of economic progress, but also the amount and cost of the community's savings, its relations with the rest of the world, and the nature and direction of its demand for consumption goods, before it can be used as the basis for statistical investigations.* But that it *can* be so used need not be questioned. Nobody would want to deny on *theoretical* grounds the possibility of arriving inductively at the conclusion that, say, the standard of life in a particular country would have been higher (or lower) at a given moment if during the preceding ten years the population had grown less rapidly than it did. The difficulties in the way of establishing such a result are essentially practical and need not be insoluble. And it is perhaps to be assumed that when the word optimum is used in statistical or historical investigations it is meant as a technical description of a particular relationship between the numbers of the people and the production of material wealth, and as nothing else.

4. In theoretical writings, however, something more than a mere definition is usually meant. The author tends to associate the Latin word with its English translation and to take it for granted that the optimum density of population is in some sense the "best" density; that we *want* our population to attain its optimum density, and that it will be unfortunate if it falls far short of it or goes much beyond it. This view, at times merely implied, at times explicitly asserted, has so far as I know never been openly defended, or openly attacked, in economic literature: I can only suppose the reason to be that it is so obviously indefensible. Only a few sentences are necessary to show its inadequacy. In the first place, it ignores the fact, of which economists are so acutely conscious in most of their writings, that man does not live by bread alone, and that the conditions which give rise to a maximum of material wealth are not necessarily those which make life in other respects as enjoyable as possible. I am not now concerned with the view that material wealth may be a positive obstacle to happiness. Some people hold that view, and more than one religion has accepted it as a cardinal principle for the regulation of life; but in the world of modern capitalism the doctrine that material wealth helps, rather than hinders, the attainment of the good life is sufficiently widely and confidently held for it to be unnecessary to question it here. Nobody in his

* Cf. Robbins, "The Optimum Theory of Population" in *London Essays in Economics*, pp. 124-134.

senses, however, believes that material possessions are a *sufficient* condition of happiness. Other conditions must also be present; and one of the most important, for most people, is the possibility of enjoying the company of other people. A person is better off if he lives in a city and has the benefit of the social and human relationships which city life offers, than if, with the same material possessions, he is irrevocably cut off from his fellow-men. And a density of population which attained the economic optimum at the expense of loneliness and poverty in social life would not be an ideal worth striving for. Conversely, if an area is so crowded as to deprive its inhabitants of the possibility of at least occasional seclusion and solitude, then the loss from this source must be offset against any gain in material wealth which may be due to the density of the population.

The numbers of a population may also have an effect upon the welfare of its members in a purely physical sense. Under certain technical conditions, viz. particularly when medical knowledge is backward, the enjoyment of bodily health may depend very largely upon the absence of excessively close contact with other human beings. If, then, the economic optimum requires the building up of densely inhabited towns, then its attainment may involve the loss of health and physical well-being—again a result to be avoided rather than desired.*

5. Thus we have to distinguish between the economic optimum, as hitherto understood, and what we may call the "social" optimum, the latter being conceived of as that density which is most favourable to the happiness of the individuals comprising the population when *all* the effects of numbers upon individual welfare are taken into consideration, and not merely their effects upon material wealth. The social optimum is unlike the economic optimum in being (so far as we have yet seen) something that is reasonably to be aimed at and desired. Unfortunately it is not a concept of which economists and statisticians can make any use; for apart from the fact that it is liable to be altered at any moment by changes in technical conditions (such as, for example, the development of new methods of transportation or the advance of medical science), the non-material effects of the size of the population on individual welfare are not capable, in Professor Pigou's phrase, of being brought into relationship with the measuring-rod of money. We must therefore face the fact that

* See on these topics Carr-Saunders, *Population*, pp. 99-103.

whatever information we may be able to amass as to the effect of numbers upon productive power, we can only make the roughest and most unscientific guesses at the size of population to be aimed at if we want to maximize individual welfare.

6. The argument, it will be observed, is by now well within the territory of the "economics of welfare." If the optimum is more than a mere definition of the condition of maximum material wealth, if it is to be understood to give any indication of what is desirable or ideal, then it must have something to do with well-being and happiness; and as I have already remarked, most theoretical economists do tend to understand it in this latter sense, not excepting (I may add) some who in general deny any immediate connection between the science of economics and the problems of welfare.* But the truth is that the difficulties attaching to welfare analysis are quite exceptionally acute in the theory of population. So long as we can take the number of individuals in a community as fixed, then it is possible—at least provisionally—to compare, and even in a rough sort of way to measure, the satisfactions which they derive from their possessions and activities; and in my opinion the attempt to do this forms an important part of the function of economic analysis.† But when we try to extend such investigations to the case of *varying* populations, then we have to compare the welfare of one group of people with that of another, smaller or greater, group. And this is a task before which the stoutest believer in the felicific calculus might well quail. Can we ever have any ground for saying—is there, indeed, any meaning in saying—that there is "more" or "less" happiness or welfare in a relatively small number of wealthy people than in a larger number of poorer people? The optimum theory assumes that maximum total welfare is identical with maximum average individual welfare. But is it not possible that there may be a real loss in welfare if the existing population sets up, so to speak, monopoly conditions in life, and in order to maximize its average happiness prevents many individuals from coming into the world who might have lived enjoyable and interesting lives? May

* Even Professor Robbins, that most uncompromising opponent of welfare economics, allows the economic theory of population a kind of peripheral semi-scientific status. See his book, *The Nature and Significance of Economic Science*, p. 118, n.1.

† Cf. my article "How Do We Want Economists to Behave?" in the *Economic Journal* for December 1932, particularly pp. 560-63.

not the gain in average individual happiness be more than offset by the fact that fewer individuals are experiencing it?*

The point may be put in another way as follows. Most people probably believe nowadays that life is on the whole worth living, whether for its own sake or because it may lead to happiness in a life to come. The Roman Catholic Church, I understand, bases its condemnation of birth control at least in part on the ground that it deprives the unborn of their right to live; and certainly most laws against abortion rest upon a similar basis. The optimum theory in effect denies that right. It assumes, or implies, that the maximization of welfare is desirable; and yet at the same time it postulates that no one's welfare need be included in the reckoning who is not in fact alive. This postulate is not merely never defended by exponents of the theory; it is incapable of defence or justification. Our views as to the rights and potentialities of the unborn are matters of individual religious or philosophical conviction, and cannot be treated by the methods of scientific analysis. We may hold that a small number of very happy people is better than a large number of fairly happy people; we may hold, on the contrary, that it would be desirable for everyone to have the chance of living for whom life could be in any sense worth while; we may hold (as I personally do) that there is no basis of comparison at all between the "happineses" of different numbers of people, and that the question is one of those to which the human reason can provide no answer. A theory which accepts only one of these and other possible views has the backing neither of inherent plausibility nor of conventional agreement and consent.

7. I suggest, then, that the optimum theory of population, though it has been historically valuable in eliminating the pre-occupation of economists before its time with the starvation limit, and though it may still provide a stimulus towards the interesting work of investigating the relations between numbers and material wealth, yet is not really entitled to a place in the corpus of theoretical economics. The word "optimum" was, I think, most unfortunately chosen, since the state of affairs it describes is not in any assignable sense the best possible, and cannot be made the aim of a practical population policy.

* Sir Charles Close recognizes this as a problem for statesmen (*loc. cit.*, p. 64), but without bringing it into relation with the optimum theory.

A NOTE ON THE POPULATION OF EGYPT

By M. EL-DARWISH, B.Sc.(ECON.), AND H. EL-S. AZMI

I. GROWTH OF THE POPULATION

The first attempt at a systematic estimate of the population of Modern Egypt was made in 1800 by E. Jomard, one of the French savants who accompanied Napoleon's expedition to Egypt at the close of the eighteenth century.* His estimate of the population at that date was 2,488,950, excluding nomad Arabs, reckoned to be another 130,000.

Two more attempts were later made to estimate the population of the country without actually taking a proper census in the scientific sense of the term. Both attempts were based on a house census. In 1821 Mohammed Ali wanted to impose a tax on buildings. For that purpose the number of houses in the country was counted; and incidentally an estimate was made of the occupants, which gave a total for the whole country of 2,536,400.† This figure was probably too low, for another estimate on the same basis, in which more care was taken, gave in 1846 a population of 4,476,439, excluding nomad Arabs (180,000) and foreigners (60,000), the grand total being 4,716,439.‡ It is true that the period 1821-46 marked a stage of rapid increase in the population of Egypt, as well as a strong current of immigration from Turkey, Syria, Arabia, the Sudan, and Europe. Yet this would not by itself account for the huge difference between the increase in 1800-21 and that of 1821-46. So that we ought to omit altogether the figure of 1821 in trying to calculate the rate of growth of the population of Egypt.

* See E. Jomard: *Mémoire sur la population comparée de l'Égypte ancienne et moderne*, in *Description de l'Égypte*, Vol. IX, pp. 103-211.

Cf. also an article by M. El-Darwish, "Analysis of Some Estimates of the Population of Egypt before the Nineteenth Century," in *L'Égypte Contemporaine*, Vol. XX, 1929, pp. 273-86.

† A. Boinet: *L'accroissement de la population de l'Égypte*, in *Bulletin de l'Institut d'Égypte*, 2nd series, No. 7.

Also E. de Régnv: *Statistique de l'Égypte*, Vol. I, p. 11.

In a paper read before the Royal Statistical Society on "Some Statistics of Egypt," Mr. Joseph Rabino referred to a computation made in 1835(!) of the number of houses in the country, granting eight persons for each house in the capital and four elsewhere, the total (population) arrived at being 2,500,000. *Journal of the Royal Statistical Society*, XLVII, 1884, p. 417.

He probably meant the estimate of 1821. There is no reference in his paper to this estimate, and there is no record anywhere of such an attempt being made in 1835.

‡ De Régnv gives the figure for 1846 as 4,463,244. There is an error, however, in his computation of the population of Lower Egypt, and he leaves out the inhabitants of the oases.

Census-taking half a century ago was not an easy task in Egypt, though probably Mr. Joseph Rabino was exaggerating when, in 1884, he told the Royal Statistical Society that, "in Egypt, figures are to a great extent a matter of hypothesis." Nor does the case of Egypt justify Professor Carr-Saunders in maintaining that the idea of census-taking "is abhorrent to the Oriental mind."*

Five population censuses have so far been taken in Egypt, in 1882, 1897, 1907, 1917, and 1927. Only three of these need some comment.

The first census, in the proper sense of the term, was taken in Egypt in 1882. A. Boinet, the Frenchman who compiled and published the results, but had not been in charge of the actual taking of the census, comments on the attitude of the people thus:

"The operation did not meet with such hostility as might have been raised to it by a population unaccustomed to administrative measures the true purpose of which escaped their knowledge. The inhabitants, in spite of their prejudices, carried on their share in the census operations with docility if not with cheerfulness."

Yet it remains true that the widespread ignorance of the population at that time, and the disturbed political conditions in which the census was taken, have led to unreliable returns in 1882. Those conditions are best depicted in the official report of the census of 1907:

"There has probably not been a single year in the last 30 years when conditions were unfavourable for census-taking than prevailed in 1882:

- (a) Since early in the preceding year a military revolt had been in progress.
- (b) In January 1882 the Governments of Great Britain and France presented their joint note to the Khedive.
- (c) Alexandria was bombarded in July of the same year.
- (d) The Battle of Tel-el-Kebir was fought on September 13th following.

"It was in the midst of those disturbing events that the census was taken. The actual date of the census was May 3rd, the month when the refusal of the Khedive to sanction the sentence passed on certain officers led to the illegal re-summoning of the Chamber of the Notables by the Cabinet, on no other authority than its

* Carr-Saunders: *Population*, p. 5.

own, with the object of declaring the deposition of the Khedive.

"The time could hardly have been worse chosen for far-reaching operations like the census; indeed, it would have been surprising if, in the midst of all this unrest, anything approaching really reliable figures had been obtained."

Moreover, the Central Statistical Bureau, which had rendered useful services since its reorganization in 1878, was suppressed, and its director, the Italian statistician, F. Amici, had to leave the country before publishing the results of the census of 1882. They were published by a French gentleman, A. Boinet, on November 15, 1884. On account of the unusual circumstances which accompanied the census of 1882, we propose to use its results only for comparison with the earlier estimates of 1800 and 1846 and with the census of 1897. For comparisons of more recent figures, we propose to take 1897 as the starting-point and trace the growth of the population through the decennial censuses of 1897, 1907, 1917, and 1927.

The population, as given in the census returns of 1882, was 6,592,049, excluding nomad Arabs, and 6,817,265, Arabs included.

The census of 1897 was taken under more favourable conditions, although the time taken over preparation was rather short; this was particularly important at a time when the ignorance of the people rendered preparatory propaganda necessary for the success of such a large-scale operation.

The population given by that census, Halfa District included,* was 9,734,405. On adding Sinai and Siwa, the figure would be 9,748,906.

The year 1917 was not an appropriate date for a census of the population of Egypt. The country, while not forming one of the battle-fields of the war, had been actively taking part in the war. So-called recruits for the labour corps in Palestine and elsewhere were being sought all over the country. A census taken under such circumstances would not be popular, and no wonder many inaccurate statements were given to the enumerators. There was a great deal of suspicion that the census was taken for military purposes, which suspicion encouraged false statements. A post-

* Halfa district, with a population of 34,381 in 1897, was detached from Egypt in 1899 and annexed to the Sudan, so that for purposes of comparison with later censuses this figure will be deducted from the total given in the census results of 1897. Arabs of Sinai (9,301) and inhabitants of Siwa oasis (5,200), on the other hand, were left out, but will be added to the figure of the census, giving a net figure of 9,714,525.

TABLE I

Date	Total Population Including Nomad Arabs	Net Increase	Average Annual Rate of Increase per 1,000	
			Arithmetical	Geometrical
1800	2,618,950	---	---	---
16.12.1846	4,716,439	2,097,489	17.41	12.87
3.5.1882	6,817,265	2,100,826	12.60	10.46
1.6.1897	9,748,906	2,931,641	28.50	23.98

TABLE II

Census Dates	EGYPTIANS			FOREIGNERS		Total Population	Net Intercensal Increase	Average Annual Rate of Increase per 1,000	
	Males	Females	Nomads (estimated)	Males	Females			Arithmetical	Geometrical
1.6.1897	4,826,763	4,695,415	79,773	64,249	48,325	9,714,525	1,572,834	16.33	15.24
29.4.1907	5,497,242	5,471,597	97,381	119,398	101,741	11,287,359	1,463,559	13.15	12.44
7.3.1917	6,283,538	6,261,431	?	102,311	103,638	12,750,918	1,466,946	11.55	10.99
19.2.1927	6,945,857	7,006,407	40,000	112,216	113,384	14,217,864			

ponement of the census would not have done much harm beyond breaking the rhythm of the decennial counting of the population, and would, while assuring better results, have saved the trouble taken afterwards to teach the people that censuses are meant for better aims than merely serving military purposes.

Table I opposite gives the population, including foreigners and nomad Arabs, in 1800, 1846, 1882, and 1897, together with the rate of growth over the intervals.

Thus the population nearly trebled in eighty-two years, during which time there were nine outbreaks of plague and cholera. The great plague of 1835 is said to have carried off in Cairo alone 40,000 inhabitants, according to official returns.

Since 1897 the rate of growth has been gradually falling, as Table II opposite shows.

The record rate of growth of 28.50 in the period 1882-97 confirms what we have already said about the dubiety of the results of 1882. Never has the rate been so high, the next highest being 16.33 in 1897-1907. No other causes, such as migration, health-conditions, or environment could reasonably explain this disparity between the highest rate of 1882-97 and the other rates since 1800. Since 1897 the increase from one census to the other has been mainly due to natural increase, the immigration movement having slackened so much as to be of no practical value.

For purposes of comparison with other countries, it is necessary to take a long period to compare the trends, and the following table gives the rate of growth over periods of thirty years:

TABLE III
ANNUAL PERCENTAGE INCREASE IN POPULATION IN
30-YEAR PERIODS*

Countries				Thirty Years, 1901-31
Egypt	..	..	..	1.35 (period 1897 to 1927)
India	..	..	..	0.66
Japan	..	..	..	1.33
England and Wales	..	..	..	0.76
Italy	..	..	..	0.89
France	..	..	..	0.25
U.S.A.	..	..	..	2.05 (1900-30)
Canada	..	..	..	3.08
Australia	..	..	..	2.36

* F. Shirras in *Economic Journal*, March 1933.

While, in the present century, the population of the United States has increased by 62 per cent., England and Wales by 23 per cent., France by 7·4 per cent., Italy by 27 per cent., India by 20 per cent., the population of Egypt has increased by 46 per cent. It must be remembered that Egypt, like India and Japan, is a country of almost universal marriage, a fact which can be mainly attributed to religion and social tradition.

The last census figures (1927) give the following results:

TABLE IV

Population (both sexes)	Never Married	Married	Divorced	Widowed	Not Stated
Total population for all ages = 1,000	513	403	13	69	2
Total for ages above 15 years = 1,000	208	656	21	112	3

2. SEX DISTRIBUTION

The figures in Table II indicate that the excess in the number of males over females has been declining from one census to another until by 1927 females had outnumbered males. The general masculinity of our population has gone through a sharp decline from 1·0279 in 1897 to 1·0046 in 1907, then moved steadily downwards to 1·0035 in 1917, dropping sharply again to 0·913 in 1927. So that the tendency which was discernible in Europe even before the war has spread to Egypt only in recent years. In Egypt, male births have, at least since 1917, been in excess of female births. But deaths in the male population have over the same period exceeded female deaths by a much bigger margin, so that the excess of males over females in the census of 1917 has been turned into an excess of females in 1927.

Table V opposite gives the number of births and deaths for each sex in the period 1917-31, and the excess of the one over the other.*

It has been maintained that in most communities:

- (1) More boys than girls are born.

This table shows that the same is true of Egypt as well.

Over the last 20 years Egypt had an average masculinity of live births varying from 1·075 to 1·088.

* Annual Return of Births, Deaths, and Infectious Diseases, 1930, Table I. Figures for 1931 have been supplied by the Statistical Department.

TABLE V
(ooo's omitted)

Year	Births			Deaths		
	Males	Females	Excess of Male Births	Males	Females	Excess of Male Deaths
1917	266	247	19	213	163	50
1918	262	241	21	297	215	82
1919	258	236	22	225	159	66
1920	292	267	25	213	156	57
1921	291	268	23	194	140	54
1922	303	279	24	195	144	51
1923	306	283	23	198	154	44
1924	313	291	22	192	151	41
1925	315	292	23	205	164	41
1926	324	300	24	208	169	39
1927	326	301	25	199	161	38
1928	327	302	25	208	172	36
1929	335	310	25	220	183	37
1930	347	324	23	199	169	30
1931	344	321	23	212	186	26

- (2) Mortality amongst boys, especially in the first year of life, is greater than that of girls. The same is again true of Egypt, as the following table shows:

TABLE VI

MORTALITY OF CHILDREN IN THE 1ST YEAR OF LIFE
PER 1,000 BIRTHS

Year	Deaths per 1,000 Births	
	Males	Females
1925	168	140
1926	160	133
1927	166	136
1928	162	139
1929	170	145

- (3) The numbers become equal in most countries between the ages of fifteen and twenty.

In Egypt this equality is achieved from the first year, as the next table shows:

TABLE VII
SEX AND AGE-GROUPS IN 1927*
(ooo's omitted)

Age	Below One Year	One Year	0-1 Year	0-4 Years	0-34 Years	Total Population
Males	249	127	376	994	5,060	7,058
Females	244	135	379	1,036	5,092	7,119

3. DENSITY OF POPULATION

Egypt has always been one of the most densely populated areas in the world. With a density of 285 per square kilometre of inhabited area (or 750 per square mile) in 1897, she was more densely populated than Belgium, the most densely populated country in Europe, with her 571 inhabitants to the square mile. The density, in Egypt, was 359 per square kilometre in 1907 and 403 in 1927.

4. VITAL STATISTICS

Though registration of births and deaths dates from the earlier part of the nineteenth century,† it was only since 1912 that it was made compulsory for the whole of the inhabitants of Egypt. In spite of the special limitations of the records, however, they could

* Census Report, 1927, Table XI, pp. 62 and 63.

† One might have expected that with the Arab rule and the imposition of a poll tax on the male population above 12 years of age, registration of births at least would be organized on some sort of scientific basis. No such thing was done, and a unique method was adopted for estimating the age of the male population for tax purposes. It consisted of applying a cord-ring to the head of young males; those whose heads passed through the ring were deemed to be under 12 and were exempted from the tax! It remains doubtful whether the ring had always the same measure in the hands of different tax-collectors. E. Jomard, *op. cit.*, p. 120.

The French introduced, for military purposes, a register of deaths in Cairo. It covered thirty-two months only, November 1798 to May 1801, but registration was interrupted, during the siege of Cairo (February to May 1800); "Tables Nécrologiques du Kaire pendant les années VII, VIII et IX (1798-1801)," by R. Desgenettes, in *Description de l'Égypte*, Vol. XVI, pp. 229-266.

In 1846, Mohammed Ali ordered that a special register of births and deaths be kept in the towns and villages of Egypt. The order did not always receive strict application and opinions of experts differ widely on the trustworthiness of such records. See Boinet: "L'accroissement de la population de l'Égypte," *Bulletin de l'Institut d'Égypte*, No. 7, 2nd Series.

be put to some good use in trying to show the direction to which the population of Egypt is heading.

5. BIRTHS

Throughout almost the whole civilized world the birth-rate has in the last thirty years been declining, though the consequent decline in the rate of natural increase has to a considerable extent been offset by the simultaneous decline in the death-rate. Only Japan has shown an opposite tendency, its birth-rate having risen from 32.1 per 1,000 in 1901-04 to 33.4 per 1,000 in 1926-30.

In Egypt the birth-rate has not decreased in the last thirty years, but has remained practically stationary around the high figure of 44 per 1,000; the birth-rate in the period 1901-04, 43.4 per 1,000, was the highest recorded in the whole world for that period. In 1926-30 it was 44.4, the second highest, Palestine coming ahead with her slightly higher rate of 45.3 per 1,000. In India, the rate has fallen from 38.2 per 1,000 in 1901-04 to 33.2 in 1926-30.*

6. FECUNDITY

The following table shows the size of the reproductive group in various countries:†

TABLE VIII

Country	Percentage of Females Aged 15-49 to the Total Female Population
France (1926)	52
Greece (1928)	52
Palestine (1931)	48
Egypt (1927)	49
British India (1931)	50
Japan (1930)	47
England and Wales (1921) ..	54

The average number of children born to each female of the reproductive group is given below.‡

* Cf. *Movement of the Population in the First Quarter of the Twentieth Century*, League of Nations, C.E.I. 4 (1), and *International Statistical Yearbook*, League of Nations, 1926 and 1930-31.

† The above table is condensed from tables in the *International Statistical Yearbook*, League of Nations, 1932-33.

‡ The table below is condensed from tables in the *International Statistical Yearbook*, League of Nations, 1932-33.

It can be seen from Tables VIII and IX that in Egypt a relatively small reproductive group is giving birth to a large number of children. The same is true of Palestine and to some extent of Japan also. According to these figures, the fecundity of the Egyptian woman is two and a half times that of the French

TABLE IX
(ooo's omitted)

Country	Births	Women aged 15-49	Average Children Born to each
France (1926)	767	10,937	0.07
Greece (1928)	189	1,630	0.12
Palestine (1931)	46	232	0.20
Egypt (1927)	628	3,513	0.18
British India (1931)	8,700	85,361	0.10
Japan (1930)	2,085	14,807	0.14
England and Wales (1921) ..	848	10,713	0.07

and of the English, nearly twice that of the Indian, one and a half times that of the Greek, and a shade under the fecundity of her neighbour in Palestine. But one should be guarded in making such comparisons, as there are other factors, besides mere fecundity, such as birth-control and racial differences which allow to some extent for this variation in the number of births per woman in the reproductive groups.

As to changes in fecundity, they are worked out in the following table:

TABLE X
(ooo's omitted)

Year	Births	Women Aged 15-49	Average Number of Children Born to each
1897	360	2,363*	0.15
1907	484	2,609	0.19
1917	514	3,039	0.17
1927	628	3,513	0.18

* 16-50 years.

Difficulties due to assimilating the decennial age groups (10-19) of the 1917 census to that of the 1927 census grouping were met

by reasonable hypothesis as to the proportions of the groups affected (the 1917 census does not give the age-group 15-19 separately). The figure for 1917 would have been higher than 0.17, and the number of births would have been bigger, had it not been for the absence from their homes of about one million youths occupied in the labour corps along the Palestine front and elsewhere.

The table shows that after rising early this century, the fecundity has remained almost unchanged over the last twenty-five years.

Related to the number of married women in the same age-group (2,069,000 in 1907 and 2,600,000 in 1927), the number of births per woman would be 0.23 and 0.24 respectively.

For the most reproductive age, 15-29, the results are as follows:

TABLE XI
(000's omitted)

Year	Births	Married Women Aged 15-29	Average Number of Births to each
1907	484	1,017	0.48
1927	628	1,845	0.34

The pre-reproductive group is declining (Table XII); a contrary tendency is discernible in Japan, where there has been a rise from 32 per cent. in 1898 to 35 in 1918 and 36 in 1925.

TABLE XII
(000's omitted)

Year	Total Females I	Females aged 1-14 II	Percentage II of I
1897	4,786	1,920	40.0
1907	5,573	2,202	39.5
1927	7,120	2,678	37.6

The percentage is 30 in Italy (1921), 21 in France (1921), 38.5 in India (1921), and 34.6 in Palestine (1922).

7. DEATHS

Here again, hardly has there been an appreciable change in Egypt, where the tendency has been in an opposite direction to what has been the case everywhere else. In Egypt, there has been a slight rise in the crude death-rate from 25.1 in the period 1901-04 to 26.2 per 1,000 in 1926-30. Everywhere else the movement was in the opposite direction. In India, which had the highest mortality-rate in 1901-04 with 32.2 per 1,000, the rate has been gradually falling to 24.2 in 1926-30.

With our high death-rate we have a rather short average duration of life. The average expectation of life at birth was, according to the census of 1927, 24 years for males and 27 for females.

Average infant-mortality amounted in Egypt to 147 per 1,000 births in 1922-26, but rose to 154 in 1927-31. It has therefore been rising in the last ten years, while falling in almost all other countries. And yet the rate in Egypt is not one of the highest, as it was 153 per 1,000 in 1925-29, compared with 176 in India, 175 in Hungary, 196 in Rumania, and 186 in Palestine.

8. NATURAL INCREASE

Palestine tops the list with an annual rate of 22.6 per 1,000 (in 1926-30), which compares with 18.2 for Egypt, 14.1 for Japan, and 9.0 in India, the lowest being France's 1.4 per 1,000.

The comparative table (XIII) shows the changes of annual birth- and death-rates, as well as the rate of natural increase over the thirty years ending 1931, the war period left out.

9. CONCLUSION

The foregoing notes, dealing with some particular aspects of the population problem in Egypt, show how unique that problem is. A purely agricultural country has nearly trebled its population in eighty-two years (1800-82), and doubled it in the last fifty years. Both birth- and death-rates, which have been falling in every other inhabited part of the world, have remained stationary. The birth-rate is almost equal to the highest on record, that of Palestine, and the death-rate is the highest, exceeding even that of India, which held the record before the World War. The rate of natural growth is also very high, exceeded by Palestine only. The country is still one of the

TABLE XIII

COUNTRY	ANNUAL BIRTH-RATE						ANNUAL DEATH-RATE						ANNUAL RATE OF NATURAL INCREASE					
	1901-04	1905-09	1910-14	1921-25	1926-30	1931	1901-04	1905-09	1910-14	1921-25	1926-30	1931	1901-04	1905-09	1910-14	1921-25	1926-30	1931
Egypt ..	43.4	45.2	44.4	43.0	44.4	44.8	25.1	26.5	27.3	25.4	26.2	26.8	18.3	18.7	17.1	17.6	18.2	18.0
Union of S. Africa..	—	—	—	27.1	26.1	25.5	—	—	—	9.7	9.7	9.5	—	—	—	17.4	16.4	16.0
Canada ..	—	—	—	27.4	24.1	23.2	—	—	—	11.2	11.1	10.1	—	—	—	16.2	13.0	13.1
Argentina* ..	32.8	37.2	38.5	32.8	30.4	28.8	16.6	18.4	16.9	14.6	13.5	12.5	16.2	18.8	21.6	18.2	16.9	16.3
U.S.A. ..	—	—	—	22.5	19.7	17.8	—	—	—	11.8	11.8	11.1	—	—	—	10.7	7.9	6.7
British India ..	38.2	37.7	39.2	32.7	33.2	—	32.2	35.4	30.7	26.0	24.2	—	6.0	2.3	8.5	6.7	9.0	—
Japan ..	32.1	31.9	33.6	34.6	33.4	32.2	24.4	20.9	20.3	21.8	19.3	19.0	7.7	11.0	13.3	12.8	14.1	13.2
Palestine ..	—	—	—	42.3	45.3	44.9	—	—	—	22.5	22.7	20.7	—	—	—	19.8	22.6	24.2
Germany ..	34.7	32.3	28.2	22.1	18.4	16.0	19.9	18.3	16.6	13.3	11.8	11.2	14.8	14.0	11.6	8.8	6.6	4.8
Rumania ..	40.0	40.1	41.9	37.9	35.2	33.3	26.0	25.9	24.5	23.0	21.2	20.8	14.0	14.2	17.4	14.9	14.0	12.5
England and Wales †	28.4	26.7	24.3	20.4	17.2	16.3	16.2	15.1	13.9	12.4	12.3	12.5	12.2	11.6	10.4	8.0	4.9	3.8
France ..	21.4	20.1	19.0	19.3	18.2	17.4	19.6	19.5	18.1	17.2	16.8	16.3	1.8	0.6	0.9	2.1	1.4	1.1

* Periods are somewhat different in the case of Argentina. See *Mouvement Naturel de la Population pendant le premier quart du xx^{me} Siècle*, League of Nations C.E.I., 4 (1), and the *International Statistical Yearbook*, 1926, 1930-31 and 1932-33.

† Figures are given for the United Kingdom since 1921.

most densely populated areas in the whole world, housing a bigger and still bigger population, and at a noticeably higher standard of living. Yet, judging from social conditions as they actually are, we would not be making a bad guess if we forecast that, in the near future, the country might have a new story to tell, that which all other countries have been telling, viz. a steadily falling birth-rate, accompanied by a smaller fall in the death-rate, and a smaller rate of natural increase.

MIGRATION IN THE TWENTIETH CENTURY

By PROFESSOR JOHN COATMAN

PRESUMABLY the deadly standstill over great areas of human economic activities, including those connected with migration, will end sooner or later, and when this happens we shall find that migration has become one of the most difficult and formidable of all the international problems which we have to solve.

The words migration and migrant have never been reduced to one general definition acceptable by administrators or students all over the world, but for the purpose of this paper, by migration is meant the movement of human beings from one country to another with the intent permanently to change places of residence and legal national status. Migrants are those who move with these objects in view.

Until recently migration was, on the whole, regarded as a problem with which individual countries could deal satisfactorily, either as countries of migration or as receiving countries. At the most it was regarded as a suitable subject for bilateral agreements. But this narrow view of a many-sided and immensely formidable problem will not be able to survive. The nations of the world, however reluctantly, will be compelled to regard migration as an international problem calling for combined international consultation and action. Further, although migration is, or ought to be, regarded as primarily an economic problem, economic considerations are being increasingly overshadowed and overborne by other considerations. The organization of humanity in a number of sovereign nation states ensures that the question of the migration of citizens, deeply affecting as it does the strength and solidarity of the nation States themselves, must be and remain a political matter of intense importance to the States concerned. Indeed, any attempt to treat migration as a purely economic problem would be a mere waste of time both for those who make the attempt and for those who study the results of such an attempt. Thus some attention must be paid to its other aspects because the problem of migration has these three bases, or, it might be better to say, aspects, namely the economic, the demographic, and the political aspects, and it is impossible to say that any one of these is more important than the other. Certainly consideration of all three is necessary to make any discussion of the problem a real one. We shall therefore have to take into consideration the demographic and political aspects of

migration, though we shall do so as briefly as possible. Naturally, no attempt will be made in this paper to discuss the fundamental biological conditions governing birth-rates and the rise and fall of populations. Such mysteries are not for laymen lightly to intrude upon, and, in any case, discussion of them is ruled out by considerations of time and space. Nevertheless, in any full discussions of migration, *sub specie aeternitatis*, such discussion would have to be undertaken.

It is becoming increasingly clear that national action alone will not much longer be adequate to deal with the problems arising out of migration in the future.

If for no other reason, migration will have to become a business of general international concern because of the increasing degree to which it has formed the subject of restrictive legislation in the countries both of migration and reception during recent years. This part of our subject will be discussed later. Here it is enough to say that national legislation has already led to a situation in which there is a definite clash of policy and interest between the countries of migration and the receiving countries, on a scale and of a kind calculated to lead, sooner or later, to serious complications. This has been foreseen by various international bodies which have passed resolutions concerning the desirability of the future control of migration by international action. Very shortly after the end of the Great War, the International Labour Conference of 1919 recommended the formation of an international migration commission which, "while giving due regard to the sovereign rights of each State, should consider and report what measures can be adopted to regulate the migration of workers, and to protect the interests of wage-earners residing in countries other than their own." This resolution, it is true, is concerned only with one part of the migration stream, namely, that composed of emigrants of the working classes, and with one aspect of the problem, namely, the economic aspect. But, in view of the fact that the migrants of the working classes form the immense majority of the total of all migrants, this resolution is, in effect, a plea for the international organization of migration generally. Other international bodies have discussed the problem of post-war migration, and have made recommendations along similar lines. Thus the Report of the International Emigration Commission of 1921 recommended the creation of a permanent Commission composed of a small number of its members, aided if necessary

by experts, to assist the International Labour Office in its work, and "to follow from day to day with full moral authority the development of this question."

Again, the International Labour Conference, held in 1922 at Geneva, recommended the communication to the International Labour Office of statistical and other information regarding emigration, immigration, and the repatriation and transit of emigrants. In 1926 the Conference reported that "about fifty important associations in Europe and America have joined in the creation of a permanent Conference for the study of the problems concerning the protection of emigrants in close co-operation with the I.L.O."

Lastly, the World Economic Conference of 1927 deals more than once with the problem, on one occasion referring to "the serious questions of working-class migration, a problem which cannot be satisfactorily solved except by means of international negotiations."

Unfortunately, the International Conference in Havana in 1928 was almost entirely infructuous. Some of the most important countries concerned, such as Italy, Canada, and Brazil, took but little interest in the Conference, and the representatives of those countries which were concerned took care to keep clear of the really controversial issues. Such has been the outcome of the International Conferences in this thorny subject held since the war.

Among other important pronouncements on the same topic may be mentioned that of the second Conference of the Institute of Pacific Relations in 1927, where the conclusion was reached that—

"human migration, under modern systems of transportation and economic organization, is believed to be one of the major international problems of the present day."

It is obvious from all these pronouncements that the existing clash of interest between the countries of supply of migrants and those of demand, have already given rise to important demands for the internationalization of migration.

But in addition to the steadily growing opposition between the interests of the receiving countries and the countries of migration, and the economic considerations which we shall have to consider later, we may distinguish here certain broad demographic conditions and developments which are working

powerfully to remove the whole question of migration outside the range of purely national policies and arrangements. And the first of these features to which we must direct our attention is the differential birth-rates which we find, not only between different races inhabiting different continents, but also between the different peoples of the same race, and in particular between the different European countries. One of the most striking and spectacular features of world vital statistics is the great leap forward of the population of Europe from the beginning of the nineteenth century. Europeans to-day form perhaps twice as large a proportion of the world's population as in 1800, and the population of Europe has almost trebled itself since that time. In spite of this great expansion, however, there has been a general decline in the birth-rate in Europe since the 'seventies of last century, but it has proceeded unequally as between different countries. Whereas certain of the Western European countries, and notably Great Britain and Germany, were well in the van in the matter of population increase during the first six or seven decades of the nineteenth century, the big increases are now taking place in the south and east of the continent, in Italy and Spain, and in Russia and Poland, and other countries east of Germany and Austria. The provisional figures printed in the *League of Nations' Year Book* for 1930-31 show that in 1930 the annual rate of excess of births was 5.1 in the United Kingdom, 6.4 in Germany, 2.4 in France, 17.0 in Poland, 12.3 in Italy, whilst the European Russian rate for 1928, the last year for which figures are available, was 23.9.

Outside Europe, excluding China because of the great conflict of opinion regarding her population and its rate of growth, and the admittedly unsatisfactory character of much of the evidence concerning these, our attention is directed mainly to Japan and India. In the latter country we find that the population has probably more than trebled itself since the beginning of the nineteenth century, and that the true increase in population since the first official census was taken in 1871 is somewhere in the neighbourhood of eighty millions. This is after allowing for the inclusion of new areas in the census, improved methods of enumeration, and so on. In Japan the population doubled between 1868 and 1928, and is increasing by about one million per annum. Again, excluding China, where the most that can be said is that there is not likely to be any *appreciable* change in the next half

century or so, the population of Asia generally is expanding. In all these countries of what we might call new population expansion there is no reason to doubt that the process of increase will continue for some time. We must assume that the application of medical and other scientific knowledge, and the general development of their economic systems, may even increase the present rate of population growth in the near future in these countries which, indeed, are in all likelihood now approaching the period of their most rapid growth. In his Harris Foundation Lecture of 1929, Kuczynski says that "the population of Western and Northern Europe, North America, and Australia combined, no longer reproduce themselves." This statement cannot be accepted as literally correct without some doubts and qualifications. Nevertheless, study of the vital statistics of the peoples concerned shows that the position defined by Kuczynski has been reached by some of them and is being more or less rapidly approached by the others.

Bearing these broad features of the differential birth-rates in mind, we must remember that the peoples, largely of Western European origin, who, as a whole, are approaching a state of stationary population control a very large part of the vacant land areas of the earth, and apparently intend to control them even more rigidly in the future than they have done in the past from the point of view of migration. It has been estimated that the proportions of the populations of North America, Europe, and Asia are to each other as $1 : 3\frac{1}{2} : 7$. And this disparity is likely to increase rather than to diminish in the future. In all the countries of high birth-rates, excluding Russia, whose soil and resources can be made to support her increase for a long time to come, the pressure of population on national economic resources is intense. Driven by sheer necessity, arising out of the restrictive policies of the countries of immigration to which we shall turn in a moment, these countries are trying to develop their resources, both natural and artificial, to the utmost. By means of irrigation, land reclamation, agricultural scientific research, and so on, natural resources are being exploited to the full, but in none of them, not even in India, is there any prospect of complete and permanent relief in this direction. So they are being forced to develop their secondary industries and reduplicate existing industrial productive power, protected by national economic policies which have already inflicted grave injuries on the world, and

will inevitably lead to fiercer economic conflicts between the nations in the future than they have done in the past. The economic factor of the problem is charged with danger no less imminent and far-reaching than its racial and political factors. In a word, just as the great expansion of the populations of Western Europe in the eighteenth and nineteenth centuries has posed us with certain major problems whose solution is only now beginning to press upon us, so the recession of these populations, now and in the years to come, is presenting us with other problems not less formidable, which will have to be solved simultaneously with the earlier problems. We have got to visualize the emergence of deep-seated differences of interest and policy between the white races themselves and between certain of the white races and some of the coloured races. We shall shortly study the broad statistical features of the migration of these countries of expanding population, but we may note here that but for the restrictive immigration policies in certain countries, mainly Anglo-Saxon countries, there is very little doubt that migration from certain Asiatic countries would have been much larger in the past and would be running much more strongly to-day than it is. Quite apart from the demographic and economic conditions of these countries, we must remember that increasing education and knowledge brings into play in them exactly the same factors as have stimulated emigration from Western Europe in the past. Apart from the desire to take advantage of economic opportunities elsewhere, the mere desire to go abroad and increase their knowledge of other lands and other ways of life are important intangibles. Thus, as we shall see when this rapid survey of the more obvious demographic features has been completed by an examination of present-day national migration policies, the people of one particular part of Europe are, so to speak, ranged against the greater part of the rest of the world in this matter of migration. Of course it is impossible for any particular population to continue to expand at a constant rate for an indefinite period, and also there is no reason to believe that any race is inherently more fertile than any other. Nevertheless, there are no natural reasons why what we have called the countries of new population expansion should not continue to expand throughout the greater part of this century whilst the others contract. And in the countries of high civilization, the growing knowledge of methods of contraception, combined with increasing urbanization and its proved

deleterious effect on the birth-rate, make it reasonably certain that the decline in the birth-rate will spread rapidly to all classes.

In spite, however, of the weighty pronouncements quoted above in favour of the introduction of some measure of international control over migration, and in spite of the very grave trends in population development which we have noticed, international action in regard to migration has hitherto touched hardly more than the fringe of the subject. None of the fundamental, and therefore highly controversial, problems involved have been touched. In the meantime the number of countries which have adopted systematic migration laws, based on their own individual national interests, has greatly increased since the end of the war. In this legislation we see quite clearly a broad cleavage of interest and point of view between most of the countries of emigration and the receiving countries. The tendency in the former is no longer to regard the emigrant as a loss to his country. He is being given increased protection in order to ensure that he retains his affection for his homeland, and, as far as possible, to guarantee that he does not lose his peculiar national traits. The old unrestricted right to individual liberty in the matter of migration is being taken away and replaced by State control which aims at a policy of collective migration in the interests primarily of the State and not the individual. This development has been carried farther by Italy than by any other country. Her migration policy is controlled by the General Directorate of Italians Abroad—a very significant title—which is directly attached to the Ministry for Foreign Affairs. Since 1927 Italian emigration policy has become far more rigid than it was before. Temporary emigration is allowed on contracts of employment, but for permanent emigration letters of invitation are compulsory, and such letters are only valid when sent by male relatives in oversea countries. The emigration of persons of the professional classes is encouraged because these do not run the same risk as manual workers of becoming denationalized. The way is made increasingly easy for Italians overseas to return to Italy for visits, and this still further minimizes the risk of denationalization. One of the most striking features of migration statistics to-day is the constant return of large numbers of Italian nationals to their country, not only the “continental” emigrants, whose return is natural enough, but those coming from overseas countries, particularly from the American continent. In important centres of Italian settlement overseas, propaganda

on behalf of Italian culture is carried on through sports clubs, libraries, savings banks, Fascist groups, and so on, as well as by the Dante Alighieri Society. Particularly important is the part played by the Fascist groups. No other country has carried this kind of action as far as the Italians have done, but we may confidently assume that "national" migration policies in the countries of emigration will tend to approximate towards the Italian model.

In view of this development in the policies of the countries of emigration, it is not surprising to find that the countries of immigration are devoting increasing attention to the problem of how best to guard against the disorganization of national unity and security produced thereby. This attention shows itself in the increasingly restrictive character of immigration legislation, restriction being attained either by increasing the difficulties of admission by one pretext or another, or by actual numerical limitation. Moreover, action is not confined to this more or less negative policy of restriction. Some countries now pursue an active policy devoted to speedy assimilation and complete nationalization of their immigrants, and this, in turn, is bound to result in further restrictions since the unassimilable races, particularly in the English-speaking countries, must become increasingly unwelcome. The countries which at present receive immigrants in appreciable numbers may be broadly divided into two classes. The first class consists of those countries whose economic conditions make it necessary for them to regulate the flow of immigrants in conformity with the demand of their labour market. These countries tend more and more to look for quality in their immigrants. The other class referred to comprises those countries which welcome any sort of labour and do not trouble so much about quality, provided they get quantity. Of this second group of countries perhaps the most outstanding example is Brazil, but how long she will remain in this category is doubtful. In the first group are all the more important countries of immigration, such as Canada, Australia, the United States of America, the Argentine, and now, perhaps, France. Of this development on the side of the countries which receive immigrants the most spectacular example is provided by the United States of America. Her position in the immediate post-war years was quite exceptional, for she was the objective of about half of the migrants who travelled overseas from their homes.

Without exceptional measures of protection it is impossible to say to what height the flood of immigration into the United States might have risen. Certainly the labour market would have been hopelessly overstrained, and the cherished American policy of assimilation of immigrants must have been rendered immensely more difficult of application. Hence the legislation of 1921 and 1924 and the quotas on the "national origins" bases. The real effect of this legislation was, of course—as it was meant to be—selective, and effective preference has been given to immigrants of the so-called "Nordic" races. Further, admission is granted only to those who might reasonably be expected to become completely assimilated, and this, in effect, meant the total exclusion of immigrants of such races as, for example, the Japanese.

When it is remembered that modern emigration, from the beginning of the last half of the nineteenth century until the Great War, was practically entirely spontaneous and personal, there will be no difficulty in seeing something of the effect which all this restrictive legislation and other forms of interference with free movement has produced on the flow of migration. Coming, as it does, more and more under control at both ends, the stream of migration can no longer, so to speak, find its own level. Economic desire and impulse, on the one side, can no longer mate with economic opportunity on the other side. No longer do we see anywhere the wide-open doors of the past, not even in the countries of South America. Taking no account of the migration statistics of the last three years, which are, of course, an entirely abnormal period, we can see how powerfully the strong, spontaneous movement of overseas migration is being affected by referring to the chief statistical features of past emigration and immigration from and into some of the principal countries of the world.

The main flow of migration in modern times has, of course, been into the American continent. Only an approximation to the actual numbers can be made, but perhaps we shall not be very far out if we say that during the last century and a quarter between fifty and sixty million immigrants have entered America, the correct number being nearer to the latter than the former figure. And, of this enormous inflow, fully two-thirds has been into the United States of America. Of course, not all these immigrants have stayed, but we shall be safe in assuming that the greater number have done so. It was not until 1820 that accurate figures

of immigration into the United States of America began to be kept, and in the decade beginning with that year we see the stream beginning modestly with an annual number of something over 15,000, progressing steadily through an annual average of approximately 60,000 in the next decade, up to its peak in the decade 1901 to 1910, when the annual average was 879,500. Between 1820 and 1900 there was only one period of regression, of marked regression at any rate, and that, as might be expected, was the decade 1891 to 1900, which experienced an economic slump in many respects comparable to the one from which we are suffering to-day. Since 1910, however, the figures have gone down steadily through an annual average of 573,600 in the decade ending in 1920, to 410,700 in the decade ending 1930, the smallest average figure, excepting only the lean years of the 'nineties, for half a century. And, of course, the only possible assumption we can make concerning the future trend of the figures of immigration into the United States, is that they will continue to move downwards. We must remember the fact stated above, namely, that immediately after the war more than half the transoceanic emigrants of all countries poured into the United States, and then we shall be able to appreciate the gravity of the new position set up by the severe restrictions and the strict selection of American immigration legislation, beginning with the law of 1921. For the greater part of half the would-be migrants of the whole world, the objective which they sought has been denied, and this for reasons which, at any rate hitherto, have been primarily political and social, not economic. The peoples most deeply affected by the United States' legislation are the "non-Nordic" peoples for whose emigration it has sometimes been suggested room might be found in the South American countries. Since the restrictive legislation of 1921 in the United States, the Argentine has quite definitely taken the first place as the objective of Italian emigration, for example, with the United States second, and Brazil far behind as third. These two South American countries have taken numbers of other "non-Nordic" peoples since the war. Indeed, from 1875 onwards, either the Argentine or Brazil has been the chief country of immigration, after the United States, and, therefore, in view of their past and present importance, it is natural that those in search of a substitute for the United States of America should turn their eyes towards the south of the continent. But these countries also are beginning to restrict entry more

and more, and, quite apart from restrictive legislation, their present economic position and prospects of development in the near future hold out but faint hope that they will be able to receive the surplus of the "non-Nordic" populations in anything like the numbers which entered the United States of America in the past. Canada has obviously taken to heart the lessons provided by the experience of her southern neighbours, not to mention her own experience with certain "unassimilable" elements, and as we shall see she also will prove but a poor substitute for the haven which such migrants have lost through recent legislation in the United States. These remarks apply with still greater force to other British Dominions.

If these developments in the main countries of immigration have hit certain European peoples very hard, they hit others still harder, for in the two great North American countries, at any rate, the entry of coloured peoples is virtually prohibited. Looking outside Europe to the movements of coloured migrants, interest is practically entirely confined to the Chinese, Japanese, and the Indians. The overseas movements of all these three peoples are comparatively small. Chinese emigration to Malaya, the main overseas outlet for Chinese emigration in the past, has frequently exceeded the hundred thousand mark annually of recent years, but in the absence of official Chinese figures and the known existence of a strong volume of returning Chinese nationals from abroad, it is difficult to estimate the present total net outflow of Chinese with any high degree of accuracy. Japan's main overseas migration seems to be settling in towards Brazil, since the entry of her nationals to United States territory in any part of the world is now so severely restricted. Indian migrants now resident abroad represent about 1 per cent. of the total population of India, and half of them are concentrated in Ceylon, while about one-third of the remaining half are in Malaya. In some of the East African colonies there is a certain scope for Indian traders, but for mass migration of Indians there is no scope, even in the British Empire, notwithstanding the important flow of Indians in the past to places like Malaya and British Guiana. To-day, therefore, the main movements of Chinese and Japanese are of the "continental" type, whilst the greatly restricted volume of Indian overseas movements are of the temporary, indentured labour type. Recent movements of Chinese into Manchuria and Mongolia have been estimated as high as from three hundred

thousand to half a million annually, but Japanese migration into Korea and Asiatic Russia is no longer important, nor is the Indian migration to Burma, Indo-China, and certain other neighbouring countries. The Japanese are in a peculiarly difficult position because their standard of living is higher than that of either the Indian or the Chinese, and therefore they do not really compete as migrants with either of these two races. Nevertheless, most of the countries suitable to their migrants are closed to them as completely as they are to migrants of the other two races.

The phenomena which we have been studying are a jumble of natural and artificial, rational and irrational, conditions and actions. At first glance it may appear that purely political and racial considerations have determined not only migration developments of recent years, but, to some extent, as in Italy and Poland in particular, even the course of the birth-rate. Such considerations have, perhaps, been the most important factors in determining migration policies in recent years, but they find strong support in the economic factors in migration. Large tracts of the economic field still remain to be surveyed, but important work is being done in it, in the United States of America and Canada particularly, and also in France and Italy. The work of the National Bureau of Economic Research in the United States comes easily first in this respect, but Canadian work will ultimately prove to be no less important and significant. Jerome's study of *Migration and Business Cycles* shows conclusively that the cyclical fluctuations in migration are, as far as the United States of America are concerned, to a large extent a reflex of industrial conditions there, and gives us some of the groundwork for a statistical demonstration of the effects of immigration on the intensity of the alternate rises and falls in the trade cycle. Canadian work has shown complete correlation between unemployment and emigration from Canada. Not only do the greatest numbers leave that country at times of the greatest unemployment, and not only do most go from the occupations which are the hardest hit, but also it has been shown that the greatest unemployment has been preceded by the heaviest immigration.

Among American students of migration problems there is an important section which maintains with General Walker that the growth of the population of the United States of America, as the result of immigration, has been at the expense of the growth of the native stock. There are ample reasons for maintaining that

the population of Canada would have reached its present level had the immigration of the past half-century not taken place. Analysis of Canadian census and migration reports proves conclusively that native Canadians and older immigrants have been actually pushed out of Canada by more recent arrivals. In Canada, unquestionably, the cause of this displacement has been the superior competitive power of the single male adult over the married man with a family, and this phenomenon, bound up as it is with the wider question of the economic reactions of the particular age and sex distributions of the population brought about by immigration, calls for skilled economic analysis. An analogous problem arises in the countries of emigration.

Another important question to which attention is now being directed is that of "saturation points" in population and immigration. Such points have been repeatedly reached in the countries of immigration when there has always had to be an outward flow of population. At other times, as, for example, when new areas were being filled up in the United States, the South American countries, Australia, and in the Canadian Prairie Provinces from 1901-11, the country concerned has been able to absorb and retain immigrants without displacement of previously resident population. The study of "saturation points," their cure, or, better still, their prevention, will throw a flood of light on the economics of migration.

Since the days of the old Committee of 1826-27 on Emigration from the United Kingdom, the question has been debated whether the "pull" of conditions in the countries of immigration, or the "push" of conditions in the countries of emigration, has been the most effective factor in migration. As far as the United States of America are concerned, there can be no doubt that the deciding factor has been the "pull" of conditions in the States themselves, at any rate, during recent decades, and this is, almost certainly, true in other cases. Formerly, when the different countries were economically more independent of each other than they are now, there was much scope for "labour arbitrage," so to speak, with resultant advantages to the countries both of immigration and of emigration. But the continually growing economic interdependence of all the countries in the world tends to make periods of prosperity and depression synchronize everywhere. Thus, for example, when conditions in England favour emigration to Canada, conditions in the latter are unfavourable. Nevertheless,

even during periods of depression there is some migration, with corresponding effects on labour conditions in the countries of immigration. Here again is another disturbing element in the problem of modern migration, and one which will have to be dealt with on an international basis on lines to be discussed shortly.

The last of the many economic factors involved in migration to be discussed here is the effect of heavy immigration on the course of production and prices in the countries of immigration concerned. The bulk of the immigrants are single adult males, giving, in times of large arrivals, abnormal earning power. These, as a rule, spend their earnings freely and immediately. With them the conditions of optimism and confidence which underlie all trade booms are instantly present. Capital goods in the shape of houses, farm, and other implements, and so on, are freely bought, as well as consumption goods. Frequently a not inconsiderable amount of speculation originates in the same quarters. Then, sooner or later, as census figures show, a sudden change takes place. Abnormal numbers of single men marry, irresponsibility is succeeded by responsibility, optimism by caution if not by pessimism, with economic reactions the reverse of what were mentioned a moment ago. The resultant effects on the age distribution of the population during succeeding years need only be referred to.

Finally, the speed at which migration produces the economic effects we have been considering must be remembered. It is too great to allow adjustments to be made with as little dislocation as in more normal economic changes, and thus attains the importance of a major economic factor in itself.

Such are the more important features of an immensely complicated and important international problem. It is clear that the first steps towards its solution must be taken by way of research, in addition to work on the economic problems referred to in the preceding paragraphs. We need greater and more accurate knowledge of many things—of the actual volume and direction of the currents of migration, and in this connection of the division of migrants between the categories of permanent and temporary, skilled, unskilled and professional workers, and so on. The trend of, and the fundamental factors governing birth-rates, and the potentialities of economic development in the countries of immigration and emigration alike call for close study and the evolution

of national policies designed to fit, as far as it is possible to do this, the rise of populations to their economic opportunities and environment. In a word, we need much more scientific and economic study of the factors in population growth than has hitherto been attempted. At present, as all our experience hitherto has shown, international action can do no more than touch the fringe of the migration problem. Clearly, no country is going to allow its immigration or emigration policy to be governed by any international authority because of the vital questions of national solidarity, safety, and prestige which are involved. Nevertheless, international action can ensure that the first steps, to be taken by way of research, are more effective than if they were to be taken by each country individually according to different and, in all likelihood, divergent policies. As in so many other things, we badly need comparable statistics of migration all over the world, and also it is highly desirable that every country concerned should provide such statistics and furnish them to the appropriate international body, which in this case is the International Labour Office. The other subjects to which research is to be directed would also be most fruitfully delimited and defined by the same authority, which would co-ordinate effort, interpret and publish results; and gradually build up a generally accepted technique of investigation.

The next step to be taken is the conclusion of bilateral treaties between countries of immigration and those of emigration, based on the results of the work described above. The agreement between France and Poland charts much of the course in this direction. Under it the two countries have set up a Franco-Polish Commission to ensure the smooth working of the agreement, whereby immigrants in each country work on conditions of equality with native workers, and subject to health and certain other necessary restrictions are allowed to move with reasonable freedom from one to another. The International Labour Office would, in time, evolve a body of general principles governing such bilateral treaties and their further development into multilateral agreements. It could collate and publish the results of the work now being done on the economic side of migration, thus bringing this side into the prominence which it deserves, and gradually replacing the influence of mere racial prejudice and mistaken ideas of national safety by rational appreciation of the true considerations on which migration policies should be based.

It is possible that overseas migration in the future will assume, over a great part of the world, the character of "continental" migration in the past. That is, it will be mostly temporary, flowing to the points where economic conditions call for it, and flowing out when no longer required. Already as regards North America in particular, this character has, to some extent, been assumed, and this process will continue and become generalized. Permanent migration, except for British and certain other "Nordic" races, will in all likelihood shrink to small dimensions as compared with temporary migration. This development of avowedly and actually temporary migration ought to go a long way towards easing the situation for coloured and "non-Nordic" races, especially when the international body we have visualized has had time to develop its technique of statistical and other information, and such control as the nations find themselves able to entrust to it. The pressure of such peoples on their economic conditions could be materially lightened in this way, their countries would gain by the relief to their labour markets, remittances from overseas, and so on, accruing from such movements, and in return their Governments would, no doubt, formulate schemes of unemployment insurance for returned emigrants until they could be absorbed by the labour markets of their native lands. At any rate, as we have seen, there is no benefit to be had from expecting that certain of the more important countries of immigration of the past will henceforth receive these peoples as permanent immigrants in anything like the numbers they need or desire, and so we will all do well to direct our energies to the comparatively restricted but actually wide and potentially highly beneficial tasks outlined above.

The position of the British Empire and its white races in the matter of migration is unique, and its main features call for examination. In the first place, two Empire countries, Canada and Australia, could, and ought, to rank among the most important of all the countries of permanent immigration in the future. Secondly, the people of the United Kingdom, the most important of all the countries of emigration in the past, can move freely to the overseas Empire lands, undeterred by racial or political considerations. They are in the happy position of having their movements in these particular directions governed by economic considerations only. Moreover, the economic development of the present-day British Dominions will be of a kind to

favour emigration from the United Kingdom much more than it has done in the past. Lastly, the trends of the birth-rate in the United Kingdom, and of immigration legislation in the Dominions, make it reasonably certain that the Empire will be both able and ready to absorb all the emigrants from the Mother Country in the future. In an appendix to the Astor Committee's report it is shown that even without migration the population of the United Kingdom will approach a stationary condition by 1950, provided the fertility-rate and the death-rates in the different groups remain the same as in 1928-29. If, however, these rates continue to move as they have done in recent years, then, again without emigration, the population will begin to decline in the quinquennium 1938-43. These facts, which are fairly widely known, have given rise to the argument that emigration from this country cannot be carried on in future on a scale sufficiently large to ensure the maintenance of the predominantly British character of the British countries overseas. This is a complete mistake, and is based on certain features of past experience which are highly unlikely to be reproduced in the future. It is based, first, on the very high total immigration into these countries in the past, and, secondly, on the assumption that the old conditions of virtually unrestricted immigration will be allowed to persist. The argument would be sound if immigration into, let us say, Canada were to be resumed on anything like the scale of the five years 1910-14, when over 1,650,000 immigrants entered the country, or even on the scale of the five years beginning with 1920 during which an annual average of over 126,000 arrived. Anything like this is entirely ruled out for the future by the fuller understanding of the economic possibilities of these countries of immigration which now generally prevails, by the strong trends, already mentioned, in immigration legislation, and by the growing movement towards planned economic development. The most authoritative calculations, based on the fullest and most recent data available, agree that Canada will double her 1931 population in approximately forty years. On this basis her maximum absorptive capacity is about 180,000 per annum, while her average will be somewhat lower. Excluding the new annual entries into the labour market provided by the natural increase of the population, and excluding also Canadian nationals returning from the United States, Canada will be able to absorb, in times of normal economic activity, a number of new immigrants

varying from 25,000 to 50,000 annually. It is not being suggested that Canadian legislation will restrict immigration to these particular figures, but it is reasonable to suppose that there will, in fact, be far more drastic restriction and selection in the future than there has been in the past. Clearly, this country can supply Canada with immigrants on the above scale for very many years to come, and also the higher numbers which will represent her absorptive capacity as her population grows.

In spite of the difference in the economic conditions of the two countries, Australia's absorptive capacity for British immigrants should be approximately the same as Canada's because of her lesser natural increase and the absence of very large numbers of her nationals overseas, who are anxious to return. New Zealand and South Africa naturally will require nothing like the numbers of the two greater Dominions. We thus see that the 90,000 British emigrants of the Astor Committee's report will almost suffice to meet the absorptive capacity of the Dominions for new *permanent* immigration, and thus make the retention of their British character certain. There will still be scope for some foreign immigration, and remembering what was said earlier about the organization and use of temporary immigrant labour, this brief discussion will, I think, put this very important aspect of Empire migration in a somewhat clearer perspective than it was left by the Astor Report. I must, however, emphasize that my arguments refer to existing conditions. Future changes and developments may alter their bases in important particulars.

Bearing in mind the changing trends in consumption, from the "primary" to what Mr. Loveday calls the "secondary" needs of mankind, and looking at the broad distribution of industries within the Empire, we find that there is a very rough division by which the United Kingdom is the manufacturing centre and the Dominions and Colonies are the centres of primary production. There is, however, also a certain amount of agricultural production in Great Britain and a rapidly growing development of manufacturing in some of the Dominions. These manufacturing industries are mainly confined to the processing of locally produced raw materials and the production of the staple manufactures, such as iron and steel, clothing, etc. Canada has made some advance into the newer industries, but has specialized in a few rather than covered the whole field. In primary production the Dominions have responded in some degree to the rise in the

demand for dairy products and fruit, but not as far as Denmark and California respectively have done. In Great Britain what increase in manufacturing has taken place has occurred in the newer industries. There is revealed, therefore, a natural field of specialization within the Empire, although, as everybody knows, the distribution of industries and the conditions of production are very imperfect, and these imperfections contribute in no small measure to the present depressed state of producers and traders. In my view an organized scheme of migration of labour *and capital* to start new industries and extend old ones overseas would go a long way towards remedying these defects.

In the Dominions there has been over-production of certain commodities, particularly wheat, and certain manufacturing industries have been given too generous assistance by tariffs and bounties and are carried on at a high cost of production which constitutes a burden on the primary industries. Consequently the enormous potentialities of certain branches of farming, and particularly the intensive use of land for dairy farming and mixed wheat and sheep farming have been neglected or made difficult of realization. In Great Britain, on the other hand, we see our heavy and staple industries declining, over-capitalized, and slow to adjust to changes in demand, leading to a growing burden of unemployment. Conditions of life are cramped both literally and figuratively; space and fresh air become every day more difficult to find through the spread of urbanization and suburbanization of the countryside—the transference of industries from the North, leaving these areas as derelict factory dumps, has meant doubling the area of country defaced by factories and urban dwellings, and the ever-present fear of unemployment and lack of opportunity for the young has created a general atmosphere of “tightness” all round, inimical to the enjoyment of a healthy and contented life.

It may be that from the strictly economic standpoint it cannot be maintained either that England is over-populated or that the Dominions are under-populated. But on grounds of human welfare it is arguable that the transference of a steady stream of people from Great Britain to overseas countries would add to the general well-being. Emigration in the future, to be successful, must be very carefully organized at both ends, and moreover organized in a manner appropriate to the conditions of the present and the future, not of the past. The old pioneering days

are gone when emigration meant taking new land and breaking it in as a lone settler. The trend of agricultural development is definitely in the direction of more intensive cultivation of land already brought into cultivation, and farming to-day is as much a capitalist enterprise as manufacturing. Under modern conditions the immigrant farmer requires various kinds of machinery, power installation, water supply, fencing, etc., all of which necessitates a large initial capital outlay. A great waste of the country's resources and much misery is involved if, after settlement of immigrants on the land, it is found either that the market goes against them or that they cannot carry on through not having enough capital at the outset.

A further factor is that in the future agriculture will not offer the same opportunities for the employment of labour as in the past. At the time when Malthus wrote it required about 80 per cent. of the population of a country to raise its foodstuffs. The figure for advanced countries to-day is in the neighbourhood of 20 per cent. The application of scientific knowledge to agriculture, in the form of mechanical devices, soil fertilizers, scientific nutrition, and breeding of plants and animals is constantly reducing the numbers of persons required to produce the world's food. The continuance of this process means that a greater proportion of the population will be required to work in factories to make the machines, plant, and fertilizers, etc., for the farmer and a smaller proportion actually to work on the farm itself.

If, therefore, we visualize the transference of part of the population from Great Britain to overseas countries, we must investigate very carefully what are the avenues of employment in which there is likely to be real expansion. In my view there will be two main avenues. Opportunities exist in many parts of the overseas Empire for more people to take up the closer settlement type of farming, such as dairy production and fruit growing, under conditions of life which would not be very different from, but much more profitable than, those obtaining in the English countryside to-day. More important still, the potentialities of the Dominions for further development of manufacturing industries are very great. The raw materials are there, and the high standard of living creates a natural nucleus of demand for every kind of manufacture. What is needed is, first, more people in order to attain a population large enough to support efficient units of manufacture under modern conditions and to lighten the burden

of cost of railways, interest on Government loans, and the like; and, secondly, capital to start new industries and extend old ones. If the opportunity for a big drive in the direction of developing their resources and increasing their capacity to absorb people is not taken advantage of, the Dominions will undoubtedly continue to protect the industries which they have established, and the extra costs of manufacture under artificial conditions will in turn be passed on to the primary producers, thus reducing the rate of increase of wealth and immigration. Inevitably, when demand is restricted in the Dominions, British industry also suffers. This is, broadly speaking, the situation in which we find ourselves to-day, and it is likely to continue unless we carry out a bold scheme of development. For under conditions of piecemeal and haphazard restrictions on private enterprise and international trade, and arbitrary Government assistance to individual industries, the new capital available for investment does not find its way into those industries whose development improves general economic conditions permanently, but is misdirected into unprofitable ventures and often is completely lost through speculation and large-scale fraud of financiers like Kreuger, Hatry, and others.

What is required, therefore, is the migration not only of people but also of capital and industries, with the co-operation of Governments in such matters as transport, tariff modifications, housing, and national investment policies. Hitherto we have been too slow to organize on a large scale in this country, but organization is necessary for successful migration and an improved distribution of industries. The United Kingdom possesses unexampled resources in capital, technical knowledge, and skilled workers which are not being used to their full capacity, while overseas there exist all the resources of power, minerals, and other raw materials necessary for the creation and extension of secondary industries. If these resources could be brought together by intelligent survey of markets and planned mobilization of capital and labour, it would go far towards placing the economic structure of the Empire on a sounder basis than at present. And it is by aiming at a general sense of security, the fullest and most satisfying use of man's abilities, and the health and prospect of the family that the economic organization of our Commonwealth can maximize human welfare rather than by concentrating upon the greatest possible output of goods and

services regardless of the inequalities of its distribution and of the unequal efforts and sacrifices involved.

The old objection that emigrants from an industrial country only add to the troubles of the receiving country by gravitating towards the towns on account of their unsuitability for farming would no longer hold, for that is just where they would be wanted. There is also little doubt to my mind that the emigrants would be better off in their lifetime and their families in the future in their new country, and that the latter would enjoy a richer life both economically and culturally by receiving them.

ORGANIZATION FOR RESEARCH IN POPULATION

By PROFESSOR H. P. FAIRCHILD
(*New York University, Graduate School*)

POPULATION ASSOCIATION OF AMERICA

In the fall of 1930 a number of population workers in the United States felt that the time was ripe for the formation of a national organization which should promote research in population in this country, and should maintain some sort of co-operation with the International Union for the Scientific Investigation of Population Problems. To this end a preliminary conference was held in New York on December 15, 1930. It was attended by thirteen persons, and the whole question was discussed thoroughly. There was unanimous agreement that such an organization should be formed, and by vote a committee was authorized, and later appointed, to proceed with the steps necessary for organization. At this time the American Committee of the International Union was being organized, and it was voted that if a population association were eventually formed some basis of affiliation between the two should be worked out.

Pursuant to the foregoing action a Second Conference was called on May 7, 1931. It was attended by thirty-eight representative students of population questions. After extended deliberation and discussion it was voted to organize such a body, to be called the Population Association of America, the purpose of which, as eventually included in the Constitution, was to be "research in respect to problems connected with human population, in both its quantitative and qualitative aspects, and dissemination of the results of such research." Officers for the first year of provisional operation were elected as follows:—

President: Henry Pratt Fairchild.

Vice-President: William F. Ogburn.

Second Vice-President: Robert R. Kuczynski.

Secretary-Treasurer: Alfred J. Lotka.

Executive Committee: O. E. Baker, Niles Carpenter, Louis I. Dublin, Ellsworth Huntington, Clarence C. Little, Frederick Osborn, Raymond Pearl, Leon E. Truesdell, A. B. Wolfe.

During the ensuing year a Constitution* was drafted which was presented to the first regular Annual Meeting of the Population Association on April 22, 1932. After full discussion it was adopted

* Copies of this Constitution may be secured by writing to Population Association of America, Washington Square East, New York City.

including, as Article IV of the By-Laws, a statement worked out by a joint committee of the Population Association and the American Committee of the International Union as follows: "The American National Committee of the International Union for the Scientific Investigation of Population Problems is designated as the Committee on International Relations of the Population Association of America, it being understood that the American National Committee retains its autonomous character."

This Constitution provides for two types of members, one a general membership open to any interested person, the other a College of Fellows composed of students of recognized scientific standing. The general membership is represented on the Board of Directors, which is so organized, however, that the actual direction of the affairs of the Association lies ultimately in the College of Fellows.

Public sessions, presenting papers and discussions, were held in conjunction with the Eastern Sociological Conference. Officers were elected as follows:—

President: Henry Pratt Fairchild.

First Vice-President: William F. Ogburn.

Second Vice-President: Warren S. Thompson.

Secretary-Treasurer: Clarence G. Dittmer.

Board of Directors: O. E. Baker, J. D. Black, Edmund de S. Brunner, Niles Carpenter, Robert E. Chaddock, Louis I. Dublin, L. B. Dunham, Frank H. Hankins, Ellsworth Huntington, Frederick Osborn, Raymond Pearl, Harold A. Phelps, Lowell J. Reed, Leon E. Truesdell, A. B. Wolfe.

A committee was appointed, instructed to confer with a similar committee of the American Committee of the International Union, to consider a practical working basis of relations between the two bodies. This committee met, and decided that an essential step was the formulation of an outline of the field of population research. The Outline summarized in this document is the result of this decision, and will appear in full detail in *Human Biology*.

The second annual meeting of the Association was held on May 12, 1933. The existing officers and Board of Directors were re-elected. The public programme on this occasion was offered in conjunction with the American Statistical Association.

OUTLINE OF THE FIELD OF RESEARCH IN POPULATION

The Outline, prepared under the auspices of a Joint Committee of the Population Association of America and the American

Committee of the International Union for the Scientific Investigation of Population Problems, is made public in the hope that it may prove of value and assistance to students of Population in all of its branches. It is intended to be merely tentative and suggestive. Many of its sections are capable of expansion into almost unlimited detail. In the Outline as presented, the subdivisions are carried much farther in certain sections than in others. This is due partly to the greater familiarity of those who prepared the Outline with some departments than others, and partly to the hope that the more detailed classifications would encourage similar analysis in other departments by those competent to undertake it. Suggestions for the improvement and amplification of the Outline will be gratefully received by the officers of the Association.

The Outline concerns itself exclusively with research. Even in the applied branches, the subject-matter is research into purposes and methods of application. This Outline is not designed as a guide to social workers, and has nothing to do directly with the actual, active achievement of results.

A population, as understood in this Outline, is a group of men, women, and children, co-ordinated into that type of community ordinarily designated as a "society." The concept of population has a range corresponding to that of the concept of society. It may run from relatively small units at one extreme to the total of humanity at the other extreme.

The main object of this Outline, as of the two organizations that sponsor it, is the promotion of scientific research in the field of population. To this end, it is designed to assist individual workers to understand the nature and scope of the field of population, to organize their own studies, to correlate them with the work of other students, and to visualize needed research in terms of definite projects. The Population Association at the present time has no funds whatever to assist or subsidize research projects. Nevertheless, it realizes that the outlining of projects at the present time is of great importance. Consequently, it will welcome information as to projects already under way or contemplated, and others which in the minds of the correspondents could profitably be undertaken in any of the fields indicated in the Outline. All communications should be addressed to Population Association of America, Washington Square East, New York City.

SUMMARY OUTLINE OF THE FIELD OF RESEARCH IN POPULATION

Section I.—Collection and Presentation of Facts. Demography.

Under this heading are considered, *inter alia*, enumerations of population, and its distribution according to age, sex, nationality, occupation, etc., growth of population, birth-rates, death-rates, etc.

Section II.—Analysis and interpretation of facts. Population theory: laws and principles.

Under this heading are considered factors affecting the growth of population, geographical, economic, sociological, biological, psychological; also factors affecting the qualitative determination of population, environment, heredity; migration; the mathematical theory of population growth.

Section III.—Application. The use of scientifically determined theory, laws and principles for the promotion of recognized social values and the attainment of accepted social objectives. Rules of social administration. Policies and programmes.

Under this heading are considered the size of population related to human welfare, the theories of optimum population, population control, social reform, practical eugenics, etc.

In considering the practical or applied section of this Outline, particular care should be exercised to remember that it is an Outline of research. Although this section deals with the practical aspects of population theory, there is no intention to prescribe therein what a society *ought* to do about its population. It is designed to indicate the various avenues of research into the bearing of different social developments, and different types of social activity and programmes, upon certain recognized features of social welfare or progress. But this Outline does not undertake to set up these objectives or criteria, or to pass critical judgment upon them, or to indicate how they are to be established or tested. As far as goals, objectives, or value judgments are implied in this Outline they are assumed *prima facie*. They are broad desiderata that are generally accepted by common consent by the great majority of the members of society, at least Western society, such as health, vigour, intelligence, economic capacity, trustworthiness, etc.

The basic reason for this is that ultimate values can never be scientifically justified. Their existence may be proved, but not the rightness or legitimacy of their existence. That is, science may

demonstrate that the mores of a given society are animated by certain basic objectives or values, but it cannot prove, or disprove, that these values are right or should prevail.

At the same time, it should be recognized that, once the ultimate values are given, assumed, or specified, the application of social theory to these values may be just as scientifically treated as the derivation of theory.* Furthermore, since any scientific and constructive social policy or programme must be based upon some recognized and accepted final values, there is great need in the field of population for research into the values that are actually held by contemporary societies, and the relationship of these values to each other. Without positive knowledge on this point all statements of applied theory must be purely provisional and tentative. Yet, unfortunately, in the field of population, most of the objectives upon which practical policies are based are taken for granted, even by scientific workers. We make certain elementary assumptions about the desirability of health, longevity, and intelligence, and then proceed to discuss programmes of larithmic or eugenic control as if we knew not only what would be best for society, but also what each society *believes* would be best for itself. As a result, much of the discussion ends, at best, in vagueness, and at worst in contradiction and confusion.

As a single example may be taken the question of a numerically increasing population. Probably the majority of people in the United States regard growth in population as intrinsically desirable. Probably even more value a high material standard of living. But who knows which of these desiderata is more highly prized, which takes precedence over the other? Consequently, suppose a scientific population worker should demonstrate conclusively that at the present time an increasing population is prejudicial to the standard of living, and vice versa, how could he know what programme to recommend to his society? Before he can advise scientifically, he must know how these values are actually rated among his contemporaries.

NOTES ON TERMS USED IN POPULATION STUDIES

Note 1.—The present incompleteness of the science of Larithmics is illustrated by the fact that there is no accepted technical term to indicate

* A fuller statement of these principles may be found in "The Possibility, Character and Function of Applied Sociology," by Henry Pratt Fairchild: *The Social Forces*, 11. 2. 182-187, December 1932.

changes in the size of population resulting from the balance of births and deaths. Customarily, some phrase is used including the word "growth" or "increase." This is unsatisfactory, as the change may be downward instead of upward.

Note 2.—For the origin, derivation, and meaning of the word "Larithmics," see Fairchild, Henry Pratt, "Larithmics," *American Journal of Sociology*, 36. 2. 278-281, September 1930.

Note 3.—The words "Eugenics" and "Euthenics" are intrinsically ill-suited for scientific classification, because the prefix "eu," meaning "well," implies a value judgment which has no place in the field of theoretic research, and even in the applied field should not be presupposed or taken for granted. Research in population should be just as much concerned with bad origins as good origins, and in fact should not pass judgment upon its material as to its goodness or badness. But the word "eugenics" is well established in scientific as well as popular usage, and the word "euthenics" is harmonious with it, and accordingly it seems best not to attempt to alter this particular terminology at the present time.

Note 4.—The terms "Fecundity" and "Fertility" in this Outline are used in correspondence with definitions recommended by a committee appointed for the purpose to the Population Association of America at its Annual Meeting on May 12, 1933, and adopted by the Association for a year's provisional trial. These definitions, along with those of related terms, are as follows:—

NATALITY.—The birth performance of a group, correlative to mortality; natality-rate is synonymous with birth-rate.

FECUNDITY.—Physiological capacity to participate in reproduction.

STERILITY (or INFECUNDITY).—The lack of physiological capacity to participate in reproduction.

FECUND.—Having fecundity.

STERILE (or INFECUND).—Lacking fecundity.

FERTILITY.—Fecundity expressed in performance and therefore measurable; virtually synonymous with natality.

INFERTILITY.—Absence of fertility; synonymous with childlessness.

FERTILE.—Expressing fertility.

INFERTILE.—Manifesting infertility; synonymous with childless.

SOME STUDIES IN VITAL STATISTICS IN VILLAGES IN JUGOSLAVIA *

By OLIVE LODGE, M.A.

THIS year I have been studying the life of the peasants principally in the villages of Bosnia, Dalmatia, and those parts of Old Serbia and Macedonia which are near the Albanian frontier.

In these districts the people are not all of the same religion: some belonging to the Serbian Orthodox Church, others being Roman Catholics, while considerable numbers are Moslems. These Moslems are Serbo-Croatian by race and speech, but turned Mohammedan for one reason or another during the five hundred years of Turkish occupation. It is interesting to note, however, that they still keep up several Serbian customs, and in some parts venerate certain of the most important Serbian saints.

In those villages where the peasants belong to two or more religious faiths, the tendency is for all those of the same faith to live near to one another in the same quarter. This applies to the towns also, but less so than formerly.

Mixed marriages seem to be rare, though there are a few cases of Orthodox-Roman Catholic unions, but I have only found one instance of an Orthodox-Moslem marriage: that of a Serbian woman married to a Mohammedan man.

Irregular unions also were very rare in the villages. The one or two instances I have come across were of people living together awaiting the result of divorce proceedings before marrying. There was also the case of a woman whose husband had gone to Rumania several years before in search of work; and she was living with another man because the priest refused to marry them, as no definite proof of the husband's death was forthcoming.

In all the districts I found the same high birth-rate and high death-rate, with perhaps a greater infant mortality among the Moslem Serbs. It is the accepted rule everywhere for everybody to be married unless they are physically or mentally unfit. The Orthodox Serbian peasant would not dream of marrying an abnormal or slightly defective woman, because he would not run the risk of the possibility of having defective children who would be a burden to him and not able to help with the work of the homestead. A Moslem, however, would not mind so much, so long as he had a woman as a wife. It was noteworthy that the number of unmarried peasants was very small indeed.

* Interim Report No. 2 to the International Population Union.

The peasants usually marry at an early age, although custom varies in different districts. In some villages it is usual for a wife to be considerably older than her husband, while in others they are expected to be of the same age. Second marriages are the rule in some parts; in others it is not customary for widows or widowers to remarry.

Large families are desired, and are found in most villages, although among the better educated or more travelled—Moslems as well as Christians—there is a tendency to limit the number of children, much to the scandal of the older generations. This applies more particularly to those living in towns.

Some of the facts of emigration are interesting and significant. In pre-war times there was considerable emigration to Canada, U.S.A., and Australia from the non-liberated areas, i.e. Macedonia and the Sandjak of Novi Pazar then under Turkish rule, and Bosnia and Hercegovina and Dalmatia under Austrian. From free Serbia there was practically none. On the other hand, although Montenegro was free, there was some emigration to the New World. This was chiefly due to the fact that it was a small and extremely mountainous country, where it was very difficult to maintain a large family. The peasants owned their land, yet because the soil was so rocky they could only grow crops in the hollows, often only a few square feet in size. So that frequently one or more of the sons would emigrate to America to make money.

From Macedonia many men went to the neighbouring Balkan countries as well as to free Serbia, generally finding work as bakers. At long or short intervals they travelled backwards and forwards between their place of work and their native village where their wives and families continued to live and cultivate their land. Even since the Great War, there are still a number of Macedonians who find work as bakers in other Balkan countries or in the larger towns of Jugoslavia, and return to their homes at intervals.

I append tables giving a summary of one of the largest of the 560 family histories that I have so far collected. This family history is the genealogy of a Serbian woman named Ristana, who was born in 1883, and married twice; and by her first husband had one child who died at the age of fourteen. It consists of five generations, and shows Ristana's parents and grandparents on both sides with all their descendents, as well

as the parents and paternal grandparents and their descendents of her first and second husbands: totalling in all some two thousand individuals. Ristana's ancestors on both sides were peasants, owning land in many of the villages near the small town of Tetovo in Southern Serbia or Serbian Macedonia. She herself lived in a village and wore national costume until her second marriage in 1921, when she came to live in Tetovo, and at her husband's desire, or rather command, had to wear ordinary dress. His family for the last two generations have been for the most part merchants and small shopkeepers in towns, although there are still many who are peasants and live on their own land in the villages from which they originally came. The number of different villages in which the various family groups of the whole genealogy live is twenty-three, while they only live and work in six different towns.

Last summer I was able to make a complete study of one village and to collect the family histories of all the inhabitants so as to have them for comparison with the other pedigrees taken at random from other villages.

I must again record my grateful thanks to the International Population Union for their grant in aid of my research in Yugoslavia.

The number of full-term births (from the AII to the DII generation) were 1,839, including 18 still-births, besides 10 miscarriages and 15 abortions.* Fifty-one per cent. of these births were males and 45 per cent. females, while 4 per cent. were of those whose sex was not known. There were 31 sets of twins in the 1,839 births, and 51 children died very soon after birth and were not christened, because the priest could not be fetched in time.

The number of married couples was 570, but of these 9 were not counted because their issue was not known, so this makes the number of married couples 561. Since several of these persons were married twice or even three times, I have counted each married *pair* and not each *household* for purposes of calculation. The total number of individuals who were married was 1,034, and they produced the 1,839 children given above.

* These numbers are probably too low, because of the difficulty of obtaining information about abortions and miscarriages and still-births except of living persons in the AII generation.

SUMMARY OF DETAILS OF RISTANA'S GENEALOGY
TABLES FROM RISTANA'S PEDIGREE, TETOVO, 1930
NUMBER OF CHILDREN BORN (FULL TERM) TO 561 MARRIED COUPLES

	Male	Female	Sex not specified	Total	Percentages	
					Male	Female
Alive in 1930	628	551	28	1,207	66.5	67.2
Died in infancy or under 18 years	248	233	47	528	26.3	28.4
Died aged 18 years or over ..	68	36	—	104	7.2	4.4
Total	944	820	75	1,839	100	100
Percentages	51	45	4	100	—	—

SIZE OF FAMILY

Number of Children	Number of Couples	Percentage
0	92	16.3*
1-4	306	54.0
5-9	148	26.3
10-14	11	2.7
15 or more	4	0.7
	561	100

54 per cent. married couples had 1-4 children.
26.3 per cent. married couples had 5-9 children.
2.7 per cent. married couples had 10-14 children.
0.7 per cent. married couples had 15 or more children.
16.3 per cent. married couples had no children.*

Four women died in childbirth and one unmarried girl from the effects of abortion. There were four cases of people living together unmarried (see above). There were also two adults who

* This percentage must not, however, be taken as showing actual lack of fecundity, because in many instances the husbands were away in other countries earning their living, or in a few cases had died soon after marriage and the widow had not remarried. Later, when I arrange all my data for the different districts, I shall separate these several categories.

never married, because they were abnormal, and two children who could not speak properly: one, a girl who died aged 8, and the other, a boy of 16, who went to the elementary school for a time and is now employed in looking after sheep (1931).

All Ristana's family belong to the Serbian Orthodox Church, except four members who belong to the sect of *Novo Verac* (New Faith).

NOTICE

An International Congress of Anthropological and Ethnological Science will be held in London from 30th July-4th August, 1934. Professor C. B. Fawcett is to be chairman of the section devoted to Demography and Vital Statistics.

Particulars can be obtained from The Royal Anthropological Institute, 52 Upper Bedford Place, London, W.C.1.

REVIEWS AND SHORT NOTICES

A POPULATION MAP OF GREAT BRITAIN

Population of Great Britain 1931. Northern sheet of a map in two sheets. Scale 1 to 1 million. Published by the Director-General at the Ordnance Survey Office, Southampton, 1933. Price, unmounted, 1s. 6d.

We have received from the Director-General of the Ordnance Survey of Great Britain a copy of the northern sheet of the Population Map of that country. The sheet extends from 54° to 60°, N. latitude, and includes the whole of Scotland, the Orkney Islands, an inset of the Shetland Islands, and the extreme north of England as far south as Lancaster and Bridlington.

The density of population is shown by a scale of tints, from white, which indicate a density of 0 to 1 per square mile, through deepening shades of brown, to black, which indicate a density of 76,800 per square mile, or 120 to the acre or over, a state of things which is correctly described as "Very Congested." The tints are harmonious and serve their purpose well, and the whole map is admirably contrived to show the distribution of humanity over the northern portion of Great Britain. One sees at once the deserted character of the greater part of Scotland, north of the Forth, with a fringe of population along the east coast and two fairly large centres at Dundee and Aberdeen. The population map might almost be an orographical map, so largely do the mountainous areas inhibit the settlement of humanity. We look upon this as a very successful effort to represent population density upon a map, and students of population matter will be well advised to study it. The scale is the international scale of 1 to 1 million, or about 16 miles to 1 inch. This scale is quite suitable for the purpose and does not involve employment of too many sheets. We should like to see other countries follow suit, and we look forward to the publication of the southern sheet of Great Britain.

C. F. C.

LIDBETTER (E. J.). *Heredity and the Social Problem Group*. Vol. I. Edward Arnold & Co. 21s. net.

Those who have known of Mr. Lidbetter's work have looked forward to the publication of his conclusions for some years. As with many long-anticipated events there is almost inevitably a slight sense of disappointment in the realization. But the disappointment in this case is not with what Mr. Lidbetter has already achieved: we are presented with an impressive array of pedigrees, the raw material of his researches, which must contain evidence for or against many theories of considerable social interest, but we have still to wait for the author's generalizations and the full analysis of his data. These are promised to us in a later volume.

Mr. Lidbetter was inspired to begin his inquiries by reading the Reports of the Royal Commission on the Poor Laws. He had himself been engaged in the organization and administration of poor relief in and about London for over thirty years, and the present material was collected in the course of his duties in the East End between 1910, the year after publication of these Reports, and 1928. He was struck by the fact that the Poor Law Commission made no attempt "to analyse or define the personality of the pauper, his character, antecedents, or capacity," and in all their records "there is no suggestion that chargeability to the rates may be in any degree due to causes that are hereditary in origin." It was presumably with a view to throwing light on this aspect of pauperism that he set out upon his long trail of pedigrees, and it is to the credit of the Eugenics

Society that they recognized in these early days the value of such inquiry. More recently—ten years ago, in fact—they formed a committee to direct research in it, upon which a number of distinguished people have served, Mr. Lidbetter himself acting as Secretary. Without the backing of this and other bodies it is not improbable that the author would have despaired of ever bringing his work to a successful issue and making it known to the general public.

It will be evident that Mr. Lidbetter, in his capacity as poor law officer, must have had exceptional facilities for inquiring into family histories and following up any clues to relationship which could be traced. One might indeed suppose that all public officials engaged in similar work have an equal opportunity to pursue research of this kind. Normally, however, they find themselves so much immersed in carrying out the day-to-day duties of administration that they have no time to stop to ask what it means and where it is all leading. Mr. Lidbetter has the distinction of combining with the fulfilment of his routine offices a zeal for somewhat deeper investigation. With a patience and persistence wholly admirable he has made his work his pastime and his pastime his work.

As the title of his book indicates, and as would be anticipated in view of their origin, the twenty-six pedigrees it contains do not relate to the normal population but to a special group in it known as the Social Problem Group, a term which is self-explanatory and which has come into fairly general use since the publication of the Report of the Wood Committee on Mental Deficiency. A control group of pedigrees is in course of construction, obtained by taking a random sample of a hundred children attending elementary schools in the same district of London, but the results of this investigation will not be available for some time longer. Until we have a group of this kind as a standard for comparison we cannot be certain that a sub-normal population produces any more "failures" or fewer "successes" than one which is normal, although general impressions may be strong enough to indicate what are the probabilities of the case. Moreover, it is impossible to pass any final verdict upon the sub-normal pedigrees at this stage, before the author has stated his own interpretation of them.

It is possible, however, to commend the printers as well as the author on the clear arrangement of the pedigrees. They have been prepared on a uniform plan so that they convey a great deal of information to the eye without confusion, once the meaning of the symbols is grasped. Along with each pedigree are copious notes and a statistical table giving such particulars as the years of births and deaths, age when relief was first granted, the form of relief, and the total period of chargeability (when known) of the persons concerned in the pedigree. Some idea of the labour involved in their compilation—and, incidentally, of the cost of maintaining in whole or part the sub-normal section of the community—may be obtained by observing that the first of them alone related to nearly 400 individuals, who are known to have been chargeable to public funds for an average of 243 days each, the equivalent in the aggregate of a period of 258 years' chargeability.

From a casual study of the pedigrees perhaps the most striking discovery is the extraordinary amount of assortative mating disclosed in them between individuals who are sub-normal in one respect or another. This, almost without a doubt, must be one potent cause of the appearance and reappearance of defect and incapacity in succeeding generations.

Students of social biology will look forward eagerly to subsequent volumes which are to carry these sub-normal histories to the further stage of analysis. But enough evidence is already available from this and other sources to justify a serious consideration of the steps which should be taken to prevent a lowering of the quality of the nation by the cumulative breeding of individuals who are below the average in desirable characteristics.

D. CARADOG JONES.

Census of India, 1931, Vol. I, Part I, Report (518 pp.), and Part II, Imperial Tables (632 pp.). Price 15s. and 17s. 6d. respectively. Office of the High Commissioner of India, India House, Aldwych, London, W.C.2. 1933.

The volume on the Census of India, 1931, consisting of two parts: Part I containing the Report of the Census Commissioner of India, and Part II, containing the Tables, and complementary to Part I, has recently been released for publication. The Census Report tells a fascinating story of the growth of the Indian population during the decade 1921-31. The total area covered by the census taken in 1931 amounts to 1,800,000 square miles, and the total population inhabiting it to 353 millions. The population of India forms almost one-fifth of that of the whole world, and India now heads the list of all the countries of the world, not excluding China, in the number of her inhabitants. The enumeration of the teeming millions of India is a matter of great credit on account of the difficulty of communications, and limitations imposed by water, snow, and wild animals, but the credit is greater still when we take into consideration the comparative cost, which is about £1 per thousand censused in India as against £9 5s. 6d. per thousand in England and Wales.

The actual increase in the Indian population since 1921 is nearly 34 millions; or, 10.6 per cent. on the population at the last census, and 39 per cent. on the population of fifty years ago. These figures may be compared with an increase in England and Wales since the last census of only 5.4 per cent., but of 53.8 per cent. in the last fifty years. The increase in the Indian population during the last decade virtually represents the total population of France or Italy, and is greater than that of Poland and Spain.

Dr. J. H. Hutton, the Indian Census Commissioner, has given a thoroughly readable and interesting account of the economic, social, racial, and linguistic facts as revealed by the last census, suitably illustrated by maps, diagrams, and graphs. The matter presented is so adequate, and the form of presentation so effective, that the Report might well be called a contemporary history of India. The Report also contains the results of the actuarial examination of the 1931 census returns. The Actuary has done the work with great care and efficiency. It is satisfactory to note that the expectation of life in India is appreciably greater than that disclosed by the actuarial examination of the previous census returns. A new feature of the last census has been the obtaining of the figures for comparative fertility for different occupations and castes, and in relation to the age of wife at marriage. The Report contains the results of this attempt on the examination of about one million returns. It is interesting to note that the fertility of marriage is not decreased by the practice of marrying very young brides, though the survival rate among the offspring is lower.

The Indian Census Report gives a complete picture of the Indian population, and it will be well worth perusal alike to economists, statisticians, sociologists, social reformers, and students of Indian problems.

OM P. GUPTA.

FAWCETT, C. B. (B.LITT., D.Sc.). *A Political Geography of the British Empire*. Publishers: University of London Press Ltd. 18s.

Professor Fawcett's name on the title page of this book is proof enough that we have here a publication of more than ordinary importance. But the book must be read before its full importance and significance can be appreciated, even by those who are familiar with the author's previous writings. Apart from its high intrinsic merits, which make almost every page a store of new knowledge, the work before us is a pioneer in a virgin field. Professor Fawcett introduces a new, rich strand into those which scholars and statesmen and others all over the British world are trying to weave into one symmetrical, many-coloured pattern—the plan of the supra-national “Great Society” of the future into which the British Empire and Commonwealth are surely developing. Much work has been done on the historical, economic, and political foundations of this “Great Society”; its philosophical bases are being laid, and the newer science of “Human Geography” is beginning to organize our knowledge of the oecology of its various parts. But even these great and important branches of study do not cover the whole field. Something was lacking which Professor Fawcett now sets out to supply, namely, an objective presentation of the population distribution of the British Empire, with the relations between the distinct groups, and their physical environments and developmental possibilities set forth with admirable clarity. Further, the “setting” of each such group in the Empire and in the world as a whole is shown. Comparisons are made between the demographic conditions of different parts of the British Empire and neighbouring countries or colonial possessions, and from these comparisons the mind of the student is led on to ideas and speculations of the highest interest.

But let it not be supposed that this book is nothing more than a philosophic study of population conditions in the British Empire—highly valuable and original as that is. Professor Fawcett all the time is concerned with the political significance of the facts which he is studying, and every chapter brings us stores of new knowledge and stimulating suggestions. Read, for example, what he says about the “citizen” part of the population of our Empire and his suggestion for increasing it. The whole spirit of the principles on which our expanding Commonwealth (in the now accepted sense of that word) is based lies latent in those few sentences. Again, see his discussions on pages 40–41 of the sparseness of the population of British temperate lands. There is no argument or propaganda here, but the moderation with which he states his devastating facts (and this refers to innumerable other examples which could be given) brings home to the reader with conclusive force that the possession of these lands is a privilege to be earned by earnest and rational development of them.

Another profoundly important theme is brought to our notice by what the author says on page 58 about the “rationalization” of the ownership of Africa. The new science of Comparative Colonial Administration (newer, even, than that of *Geographie Humaine*) will bring home with increasing urgency to statesmen and students the evils which will befall

in the future if homogeneous tribes and peoples are left astraddle of international boundaries, and we welcome this important reference to a great problem.

A key theme of the book is that the Empire is all the time pulling this country out of Europe's orbit into that of the New World, and no reader, however parochially minded he may be, can rise from a study of this book without realizing in his innermost heart that the people of the United Kingdom are not merely citizens of two islands off the north-west coast of Europe, but are, in fact, citizens of a world-wide state and members of an organic society which comprises a quarter of mankind within its fold. Another phase of the Empire's life which Professor Fawcett brings out so well is its dynamic, developing quality. We are moving all the time to a higher, better, more effective synthesis of aims and efforts.

It is tempting to dwell on the innumerable delights of this book, but space and time forbid further discussion of them. But reference must be made to the many maps and diagrams which are as great a joy as the letterpress. Professor Fawcett plays all manner of diverting tricks to swing his islands and continents about the world centred on London, Ottawa, Canberra, and so on, and every time he does so, he teaches us most valuable geographical facts which could hardly have been gathered at all from any written words.

Clearly, then, we have here something different from a contribution to *Geographie Humaine*, although M. Deffontaines, who is editing a very notable new series in that science which has made a worthy début with M. Georges Hardy's *Geographie et Colonization*, would admit that Professor Fawcett has compressed into his book the essence of more than one volume on this or that aspect of Human Geography. For the latter, in the hands of continental students, is primarily oecological. M. Hardy's new book, however, approaches nearer to Professor Fawcett's type, and it is a pity that *A Political Geography of the British Empire* did not appear early enough to allow the Editor to discuss its relation to his own subject and series. With all its stimulating and suggestive oecology, Professor Fawcett's book is primarily devoted to the political significance and possibilities of the geography of the British Empire, and it is this which makes it another very promising child of the old mother science of Geography. Assuredly this book will be the parent, in turn, of a new division of geographical science. Its themes will be examined in greater detail by students and followers of Professor Fawcett, and it is not too much to hope that he himself will work still further in this new country which he has discovered. To one of his readers at any rate he has given the sensations which Cortez must have felt when he stood "silent on a peak in Darien." Or, in view of the subject, should we say "on a peak in British Guiana."

JOHN COATMAN.

FERENCZI (IMRE). *Les difficultés démographiques de la politique sociale internationale*. (Extrait de la Revue *Le Assicurazioni Sociali*.) 1933.

Although on the surface this essay has a scheme, it is a little difficult to find a logical sequence of thought. Owing to the limitations of space, the author does not discuss the validity of the economic theories which form the basis of his superstructure, and it is not easy to discover which he accepts as true. The subject-matter can be simply divided according as we are discussing a "liberal" or a "planned" economy and whether adaptation is to conjunctural or structural changes.

In a liberal economy, on the desirability of which several opinions are quoted, the importance of demographic considerations must depend on our estimation of their place in the genesis of disequilibrium. After some stretch of various theories, the author appears to accept some form of under-consumption analysis. He says (page 16): "Nous venons d'exposer que le chômage cyclique dérive de la diminution de la production déterminée principalement par la contraction périodique de la consommation." Since population developments are tending to reduce the number of consumers purely, this type of unemployment will be accentuated unless measures are taken to prevent it. Further, in his last section M. Ferenczi attempts to demonstrate some connection between "over-population" unemployment by showing that a consideration of the number of "actives," i.e. persons between 15 and 65 years old, shows that their total changes at a different rate from that of the general population. In this connection there is an error on page 26, where Professor Bowley's forecasts of age distribution for England are given. The number of persons of less than 15 years was related by Bowley to the number of males of age 15-65, whereas the ratio is quoted as referring to the total of persons between these ages.

When he considers structural changes, the author is on surer ground, though here again we must begin by disagreeing. His view of technological unemployment as permanent would, I think, be hardly accepted by the majority of economists. Further, when he speaks of the growth and distribution of population in the nineteenth century as reaching a state of equilibrium with economic developments it is difficult to understand his precise meaning. M. Ferenczi's view of technological unemployment leads him to advocate international regulation of the labour market, since differently expanding populations will have different levels of unemployment. Other structural changes, alteration in the age and sex distribution of the population with consequent changes in the direction of demand, the international wage problem caused by differential rates of growth, the effect of barriers to the exchange of goods and persons, and so on, are faithfully dealt with.

How far a liberal economy must legislate for structural changes is, we think, controversial, but the importance of M. Ferenczi's analysis for a planned economy, arranging for insurance, pensions, housing, and food supply, is undoubted. There is a justifiable appeal for statistical forecasts to eliminate the frictions normally attendant on structural changes. We cannot, however, agree with demographic measures necessarily equating costs of production [of what?] in all countries, though they might help to eliminate different relative remuneration of capital and labour in different regions.

Of the possibility of international action in the near future M. Ferenczi is not sanguine. He hopes most from the International Labour Office and the League of Nations. There is, however, he thinks, small prospect of an international movement to regulate birth-rates, from quantitative or eugenic considerations. Adjustment will have to be effected *a posteriori*.

We may perhaps be allowed to sum our impressions of this booklet of 33 pages. To anyone wishing a knowledge of population movements and tendencies, and of the difficulties which beset any attempt at international regulation, we can recommend it. But we do not consider the accepted economic motives for international social policy as of any great validity.

P. K. O'BRIEN.

CURRENT NOTES

Formation of an Indian Population Committee.

We learn that a committee consisting of Dr. Radhakamal Mukerji and Dr. B. N. Kaul was appointed at the sixteenth Annual General Meeting of the Indian Economic Association, held at Delhi in January 1933, to report on the formation of a scheme to have a National Committee of the International Population Union in India.

The Next Congress of the International Population Union.

We understand that it is probable that the Congress, which will be held in Berlin, will be postponed from the autumn of 1934 to the autumn of 1935.

Statute I (e) of the International Union for the Scientific Investigation of Population Problems.

The following is extracted from the minutes of the meeting of the Executive of the International Population Union held in London on 27th June 1933:

"Statute I (e).

The Union is bound to confine itself strictly to scientific investigations, and to refuse to enter upon religious, moral or political discussions, or to support a policy regarding population of any sort whatever.

Resolution.

It is recognized that few domestic or international problems in the economic and political spheres, in which scientific method still needs to be applied, are not essentially related to the laws of population growth and distribution. This Union allows for the fullest and freest discussion of all interpretative theories based on research and investigation of the facts. The Union is bound to preserve its status as an organization devoted exclusively to the promotion of scientific research, and to act, where that is possible, as a guide in the application of such scientific knowledge to problems of an economic or political nature. The Union is, however, debarred by its constitution from affiliating with official or unofficial bodies, whether organized under national Governments or not, which are committed to policies of controlling population by means of debatable methods, though individual members of the Union are not debarred from belonging to such bodies in their private capacities. The following are examples of bodies having policies which render them ineligible for affiliation under the terms of the constitution, and belong roughly to four different classes:

(a) Bodies organized for the purpose of advocating the use of political measures to stimulate rapid increase of population.

(b) Societies advocating the use of political measures to restrict the growth of population by the establishment of birth-control clinics, abortion clinics, etc.

(c) Societies organized to combat birth-control movements by counter-propaganda on religious, political, or other non-scientific grounds.

(d) Bodies which have adopted a deliberate policy in order to modify existing population trends in growth, distribution, age or sex composition by discriminatory measures directed towards the physical extermination of proscribed or selected groups.

The exclusion of such organizations from affiliation is not to be interpreted as a criticism of their activities. Whatever political justification there may be for such movements it cannot be claimed that they find a place in scientific research."

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